Business Plan
for
Developing a
Critical Infrastructure / Key Resources
Geographical Database for Connecticut

Developed for the:

Connecticut Geospatial Information Systems Council (CGISC)

September 2008

Prepared by:

The Critical Infrastructure / Key Resources Subcommittee of the
Data Inventory and Assessment Working Group of the
Connecticut Geospatial Information Systems Council

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1. EXECUTIVE SUMMARY

Critical infrastructure (CI) includes those assets, systems, networks, and functions – physical or virtual – that are vital to Connecticut, the region, and the country so that their incapacitation or destruction would have a debilitating impact on security, economic security, public health or safety, or any combination. Key resources (KR) are publicly or privately controlled resources essential to minimal operation of the government and economy.

The federal government has organized CI/KR into 18 sectors that together provide essential functions and services that support various aspects of State and local government, private entities, and the general public. For purposes of identifying and organizing Connecticut's CI/KR GIS data, the following are the 18 sectors for which GIS data will be collected and organized:

- Agriculture and Food
- Defense Industrial base
- Energy
- Public Health and Healthcare
- National and State Monuments and Icons
- Banking and Finance
- Drinking Water and Waste Treatment Facilities
- Chemical
- Commercial Facilities
- Dams
- Emergency Services
- Commercial Nuclear Reactors, Materials and Waste
- Information Technology
- Telecommunications
- Postal and Shipping
- Transportation Systems
- Government Facilities
- Critical Manufacturing

In the event of a local, state, regional, or national crisis, or homeland security training exercise, the CI/KR data themes can be used for emergency response, recovery, long-term recovery, assessment, planning, and law enforcement.

Individual dataset standards will generally be developed by the custodian of the data; however, for the purposes of accepting and using CI/KR GIS data, a GIS "data gatekeeper" should be established for the overall CI/KR geodatabase. However, to distribute the workload key agencies should be in charge of one or more CI/KR Sectors. Furthermore, there should be "data acceptance" standards or criteria commensurate with their needs (i.e., minimum requirements). In addition, the data should be well documented, validated, follow Federal Geographic Data Committee standards, be interoperable, and cost-effective for local and state governments to implement.

A complete or partial CI/KR GIS dataset does not exist at the state level. Due to the diversity of CI/KR data, there are many data custodians and developers, making coordination efforts difficult. While some data components of the CI/KR dataset exist in other datasets, a systematic methodology to collect and/or create this dataset is needed in order to develop a comprehensive, one-source repository for the dataset.

The following strategic goals have been prioritized and established for this CI/KR GIS initiative by the CGISC Data Inventory and Assessment Working Group's Critical Infrastructure and Key Resources Subcommittee:

1. **Develop a comprehensive CI/KR geodatabase and repository** for Connecticut that will meet the data needs of all levels of government (federal, state, regional, local and tribal), be kept accurate and current and compliment the other statewide data layers.

2. **Develop a systematic methodology to create and collect this dataset in a quick and efficient manner**

There are numerous existing initiatives and efforts, along with future needs and funding issues that need to be resolved to meet these two specific goals. This Business Plan is a guide for the State and the CI/KR Subcommittee to move in a concerted effort to completing this critical dataset.

2 CI/KR GIS STRATEGIC GOALS

The following strategic goals have been prioritized and established for this CI/KR GIS initiative by the CGISC Data Inventory and Assessment Working Group's Critical Infrastructure and Key Resources Subcommittee:

1. **Develop a comprehensive CI/KR geodatabase and repository** for Connecticut that will meet the data needs of all levels of government (federal, state, regional, local and tribal), be kept accurate and current and compliment the other statewide data layers.

2. **Develop a systematic methodology to create and collect this dataset in a quick and efficient manner**

Each of these strategic goals is discussed further in the following sections.

2.1 Goal 1 - Develop a comprehensive CI/KR geodatabase and repository

The objective of this goal is to obtain as much CI/KR information in a GIS format. Due to the multiple data layers within the 18 Sectors, multiple data custodians, the shear volume, and different standards and characteristics of each data layer, this goal requires a key state agency or small state agency group to serve as the repository for this geodatabase. See Appendix A for a complete draft listing of CI/KR data layers by Sector.

2.1.1 Current Status

As mentioned above, there is not a complete or partial CI/KR GIS geodatabase that exists at the state level. Instead, what exists are a limited number of data layers compiled ad-hoc from existing data sources that have not been fully reviewed by key personnel.

However, the State is participating in a joint data gathering/sharing program led by the National Geospatial-Intelligence Agency (NGA), U.S. Geological Survey (USGS), and U.S. Department of Homeland Security (DHS). The program is called **Homeland Security Infrastructure Program** (HSIP). The contract work is being conducted by TechniGraphics, Inc. (TGS) (Wooster, Ohio). For more detailed information see Appendix B.

TGS offers services to improve the completeness and correctness of third party or customer data sets by filling in missing data fields of attribute information, catching and modifying inaccurate data already filled in and PinPointing the geographic locations of all entities in the data sets.

The company performs such tasks in support of Homeland Security to improve the quality of data on the nation's critical infrastructure. Similarly, TGS improves data sets for commercial and industrial customers, who provide the company their databases for analysis to identify errors in existing data and accurately PinPoint the location of the cleansed record.

Data Verification and Validation includes the following -

- Attribution completeness
- Attribution currency
- Positional accuracy
- Scale and accuracy
- Comparison against multiple sources
- Removal of duplicate or erroneous records
- Providing of Metadata regarding all changes

There are two specific HSIP initiates, one called HSIP Gold and another called HSIP Freedom. Connecticut is participating in the HSIP Freedom initiative. See Appendix C for information regarding HSIP.

Below is brief description of each initiative:

HSIP GOLD 2007

- What it is:
  - A unified homeland infrastructure geospatial data inventory assembled by NGA in partnership with the DHS for common use by the Homeland Security/Homeland Defense (HLS/HD) Community
  - Compilation of best available license-free Federal government and commercial proprietary data
- What it isn't:
  - The complete answer to all HLS/HD Community geospatial data needs
  - A static product
- Over 10 Million individual records
- Improved Quantity of Data
  - 184 feature classes in 2005 release
  - 300+ feature classes in 2007 release
- Improved Metadata
  - Estimated that over 80% of data has FGDC-compliant metadata
- Restrictions
  - Data has limited utility at the state and local level
  - Current licenses restrict sharing HSIP Gold with state and local authorities until the declaration of a Federal state of emergency, at which point the data is too late to be useful
- Some specialty commodity data will remain.
- May be small overlap with HSIP Freedom in special cases.
- Contains a large percentage of Commodity data licensed for Federal use only.
- Contains a significant amount of sharable data, but is not currently shared. These are government datasets, or ones constructed by government contractors.

HSIP FREEDOM

- Conceptually
  - Partnership effort to gather and improve existing government-owned, license-free data.
  - Sharing and distribution of above license-free data to officials at all levels of government (local, state and Federal).*

- Amount of sharable data will increase
- All sharable data will be shared at all levels of Government.
- No cost to State

Benefits of HSIP Freedom

- Users of HSIP get better more complete data
- States get their existing data updated
- Federal, State and Local authorities have a Common Operating Picture
- More feedback on data quality from local users
- No cost to state

How It Works (the process in general):

- State HSIP contact provides existing information to TGS (this data does not have to be geospatial and can be in some other electronic media or hard copy).
- TGS improves the data by telephoning local officials to verify the name, address, phone number, and geospatial location of their facilities.
- The geospatial location is determined by asking the State HSIP contact or local official to describe the location relative to landmarks visible in ortho imagery.
- TGS delivers the improved data back to the State HSIP contact in a geospatial format for review and any necessary edits. The State can then use the data internally. The data is not made public unless the State, in agreement with the original data provider and/or applicable laws, believes there are no associated risks in doing so.
- TGS delivers improved state data to NGA for use in its Homeland Security activities.

Current HSIP Data Collection Effort in Connecticut

TGS is currently working through the Chair of the CI/KR Subcommittee and the Department of Information Technology to collect the data specified by NGA. Currently for calendar year 2008, the following data layers are being created: fire stations, prisons and jails, EMS stations, law enforcement, hospitals, urgent care facilities, and places of worship. For a complete list of TGS's collection efforts in Connecticut see Appendix B.

Regarding data standards for CI/KR datalayer, the NGA is leading the effort with USGS and DHS to establish data standards, determine collection priorities and schedules, and maintaining and serving data for Homeland Security geospatial information.

2.1.2 Future Requirements

- Develop a CI/KR geodatabase
- Develop a repository "database" of CI/KR datasets based on the 18 Sectors
- Develop CI/KI definitions
- Identification of key state staff and resources

2.1.3 Recommended Approach

The following approach has been established that when achieved will signify success for this strategic goal:

- **Objective 1 (Near-term) – Finalize CI/KR list by Sector:**
  - Key players within each Sector need to be identified to ensure pertinent CI/KR have been included on the list.
  - Identify status of CI/KR data, sources of data, data source contact information, level of completeness, etc.
- **Objective 2 (Near-term) – Prioritize the CI/KR list:**
  - Prioritization is needed to focus on which data layers are deemed most important in terms of homeland security and emergency management.
- **Objective 3 (Near-term) – Assign key state personnel or agencies to oversee the development of the CI/KR geodatabase**
- **Objective 4 (Near-term) – Assign key state personnel or agencies to one or more CI/KR Sector**
  - Identify key Sector Stewards
  - Identify "back up" personnel to help Sector Stewards to obtain or create data, in particular if the Sector CI/KR data only exists in tabular or paper format
- **Objective 5 (Near-term) – Develop plan for guideline stewardship and update procedures**
- **Objective 6 (Long-term) – Aggressively obtain and centralize the CI/KR data layers based on priority.**

2.1.4 Potential Funding Sources and Issues

Currently, there are no funding sources for this initiative. The HSIP effort will be an important and invaluable source to the state that requires, other than state employee time, very little expenditure at the state and local level.

However, there is potential funding through the National Spatial Data Infrastructure Cooperative Agreements Program (NSDI CAP). Administered by the Federal Geographic Data Committee, the NSDI CAP is intended to "*fund innovative projects in the geospatial data community to build the infrastructure necessary to effectively discover, access, share, manage, and use digital geographic data."* Specifically Category 5 of the NSDI CAP involves the following:

- *Building data stewardship for The National Map and the NSDI* will *focus on fostering stewardships for either structures data or for transportation data through best business practices. Primary needs for structures data are the geospatial location, classification, and other characteristics of manmade facilities, based on homeland security requirements.* Primary needs for transportation data are updates for features, attributes, and geometry to the baseline roads data developed through Census MAF/TIGER Accuracy Improvement Project (MTAIP) sources. *The data will be part of a national data inventory of consistent, seamless, integrated data that is continuously improved through the incorporation of data updates from the data community.*

2.2 Goal 2 – Develop a systematic methodology to create and collect this dataset in a quick and efficient manner

The physical maintenance of the data layers that build this geodatabase would not be the responsibility of the agency/group, as that would rest with the actual data custodian, but rather the agency/group would be

responsible for identifying deficiencies and strengths within the geodatabase, seek new sources of CI/KR data layers, take the lead in creating new data layers when no other entity is able to, and maintain an inventory of all CI/KR data layers.

2.2.1 Current Status

Currently there is no methodology in place to create and collect a comprehensive CI/KR GIS geodatabase.

However, through the CGICS, the State is developing a Municipal Critical Infrastructure Data Collection Application (MCIDCA), which is to provide an easy means by which municipal users are able to:

1. Submit additions, changes, and deletions to critical infrastructure features that are within their municipality. Geographic locations, as well as tabular attributes, can be assigned, added, deleted or edited for each feature.

2. Review and approve submissions. Once approved, the new and/or changed data will be immediately available to other CT Department of Emergency Management and Homeland Security's (DEMHS) Geographic Emergency Management System (GEMS) application.

The MCIDCA is not intended to be a CI/KR data viewer. These functions are within the GEMS application. Rather this application performs as a data editing application. It is intended that the application will be used to enter/update features one at a time into the GEMS database. The application will have the capability to upload a file containing CI/KR data. However, this file upload feature will only collect files for manual processing outside the application.

2.2.2 Future Requirements

- Identification of specific data custodians/sources
- Reduce barriers regarding data sharing. A streamlined process should be developed to address conflicting requirements/needs.
- Set reasonable data deliverable dates
- Organize/extract CI/KR data from existing data themes
- Prioritize non-existing CI/KR GIS data
- Devote key staff resources (across various agencies) to create these data
- Continue to support the NGA's HSIP Freedom initiative
- Pursue NSDI CAP grants
- Due to the inherent nature of CI/KR data, security standards need to be developed and the following state agencies (through their respective statutes) need to determine what data (or portions thereof) is public information and what is considered a security risk
- The CI/KR data themes need to be available to those who need it if remote access is not available (internet service is down) – a protocol/process needs to be developed. Also, a process needs to be established to ensure maintainability.

2.2.3 Recommended Approach

The following approach has been established that when achieved will signify success for this strategic goal:

- **Objective 1 (Near-term) – Develop a CI/KR Flowchart identifying** the key personnel overseeing the entire geodatabase, each Sector Stewards, and individual data custodian

- **Objective 2 (Near-term) – Develop a collection and updating process** for each of the date layers

- **Objective 3 (Near-term) – Develop the structure of the CI/KI geodatabase**

- **Objective 4 (Mid-term) – Develop a page within the CI/KR Subcommittee's website** publishing the flowchart and description about data collection efforts

2.2.4 Potential Funding Sources and Issues

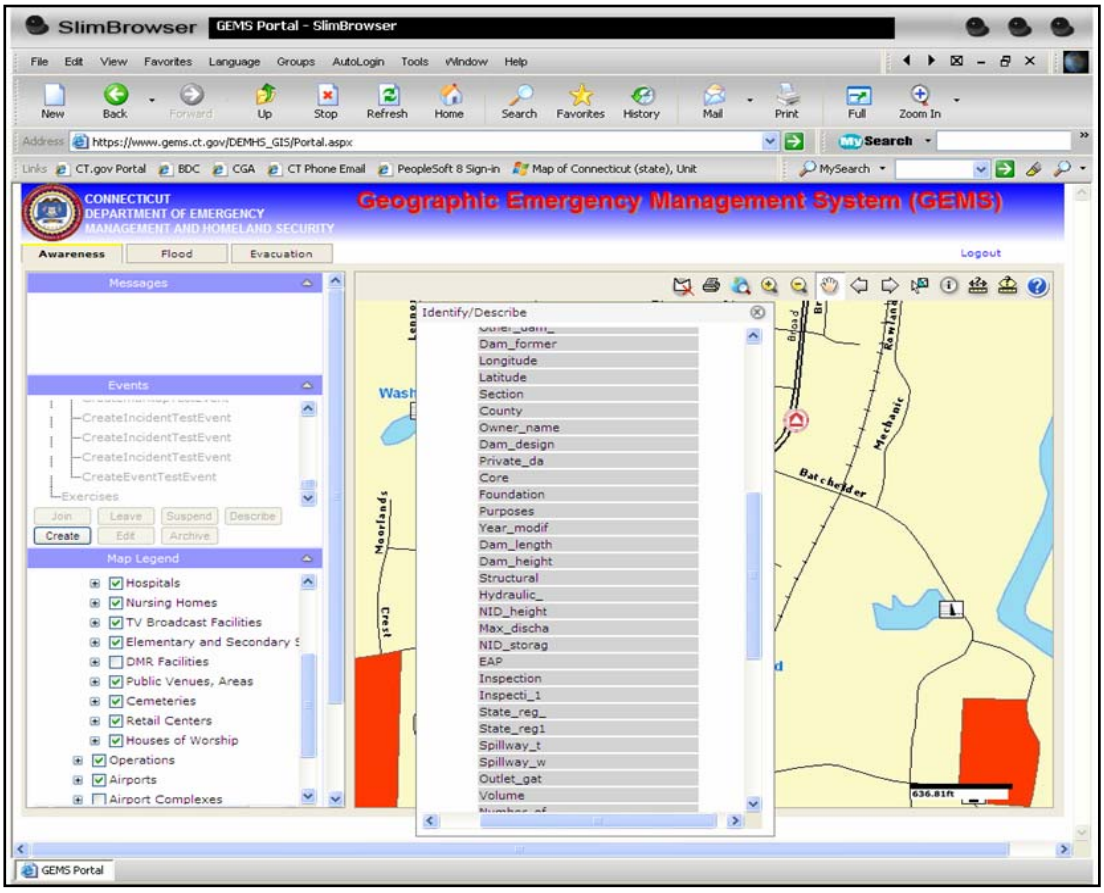
- None

3. INITIATIVES

State Level

Maps have always been an important tool for emergency management because the location of events, resources, populations, and human and natural infrastructure is so critical to the planning for and response to emergencies. Dependency on web-based GIS in the homeland security and emergency management arena is growing because of its ability to provide maps, spatial data, and the results of spatial analysis quickly to a broad spectrum of users. The State of Connecticut, which has used GIS for many years, decided to create a more comprehensive and coordinated GIS strategy across the state which would maximize sharing and cooperation in GIS system development and maximize the benefits realized from GIS investments. The main focus of this effort was the development of a Statewide GIS that could support the needs of emergency management and homeland security. A big part of the Statewide GIS effort will be the integration of GIS data from a variety of state departments, local governments, the federal government and commercial data providers. The purpose of building web-based GIS applications is to provide quick, easy access to that GIS data, along with mapping and analysis tools, to state and local officials with responsibility for planning for and responding to emergencies. The purpose of the DEMHS GIS Portal is to provide a container for data and services that will be needed by a variety of GIS applications being built to support the various aspects of emergency management.

The DEMHS GIS Portal is not intended to replace desk top mapping. There will always be specific map designs and unique analyses that cannot be anticipated by the DEMHS user community and system designers which will require staff with GIS skills. The DEMHS Portal is not intended to replace GIS programs in Connecticut municipalities but rather enhance them and provide them with data. The State DEMHS Office has a team of GIS professionals which is referred to as GeoLab. The GeoLab will have a key role in maintaining, updating, and administering the DEMHS Portal.



Geographic Emergency Management System
CONNECTICUT DEPARTMENT OF EMERGENCY MANAGEMENT AND HOMELAND SECURITY

Federal Level

ACAMS is a secure, online database and database management platform that allows for the collection and management of CIKR asset data; the cataloguing, screening and sorting of this data; the production of tailored infrastructure reports; and the development of a variety of pre- and post-incident response plans useful to strategic and operational planners and tactical commanders.

Integrated Common Analytical Viewer (iCAV)

The iCAV application is a secure, Web-based, geospatial visualization tool that integrates commercial and government-owned data and imagery from multiple sources. Using iCAV, homeland security partners can establish a comprehensive situational and strategic awareness across the nation and around the globe to better prepare, prevent, respond and recover from natural and man-made disasters.

With the iCAV application, users are able to selectively view and analyze infrastructure data in an electronic map to better understand the potential impact of a disaster on communities, as well as display the nearest response resources, such as hospitals, police and fire stations and evacuation routes.

iCAV can be used to deliver a managed User-Defined Operating Picture (UDOP) across all levels of government in support of incident management, infrastructure protection and threat-mapping activities.

Federal, state and local homeland security mission partners may access iCAV 24/7/365 from any Web-enabled computer with a Homeland Security Information Network (HSIN) username and password.

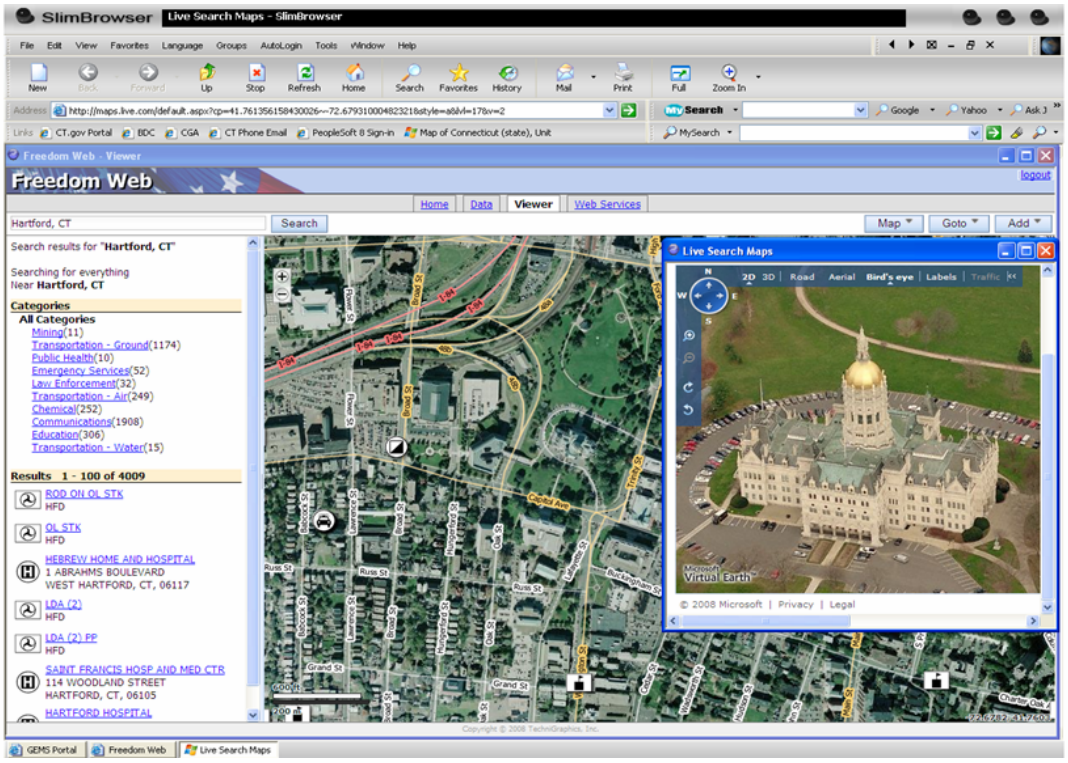
Web Based Deployment of CI/KI Data and Maintenance

HSIP Freedom / TGS Freedom Web

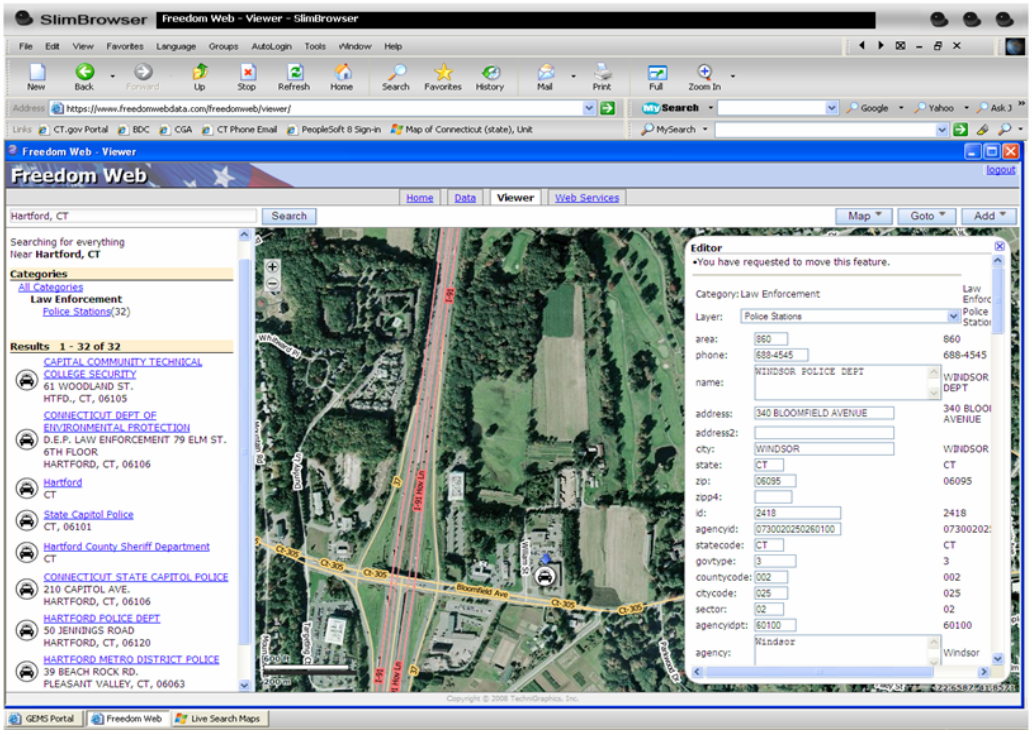
For a more detailed description of Freedom Web, see Appendix B.

For a subscription fee, officials will be able to take advantage of TGS' hosting service and incorporate Freedom Web data into their own GIS infrastructure through OGC compliant web services (e.g., WMS, WFS, WCS, each as applicable). Through this service, all subscribers will have immediate access to data updates as soon as they are vetted, sometimes in a matter of hours after those updates are made. In addition real time data feeds will be made available, such as weather and stream gauge data.

Value added datasets from TGS and other 3rd party providers would be available for an additional fee, and only through the web services component. Using web services eliminates the delay, expense and security risk associated with DVD/CD distribution.



TGS's Freedom Web Viewer



Freedom Web Editing Feature

4. IMPLEMENTATION PLAN

- Finalize CI/KR list by Sector
- Prioritize the CI/KR list
- Assign key state personnel or agencies to oversee the development of the CI/KR geodatabase
- Assign key state personnel or agencies to one or more CI/KR Sector
- Develop plan for guideline stewardship and update procedures
- Aggressively obtain and centralize the CI/KR data layers based on priority.
- Develop a CI/KR Flowchart identifying the key personnel overseeing the entire geodatabase, each Sector Stewards, and individual data custodian
- Develop a collection and updating process for each of the date layers
- Develop the structure of the CI/KI geodatabase

- Develop a page within the CI/KR Subcommittee's website publishing the flowchart and description about data collection efforts

- Develop a streamlined process to overcome barriers with data sharing in terms of data authorization agreements or contracts

- Develop GIS security standards to determine what data (or portions thereof) is public information and what is considered a security risk

- Continue to take advantage of federal grants or federal contractors that provide this data at no cost to the state.

- Develop a back up process to viewing data during an event if or when remote access (Internet) is unavailable.

APPENDIX A: CI/KR Data by Sector

WORKING DRAFT

GIS Council

Critical Infrastructure / Key Resources Subcommittee Data Themes

CI/KR Sector	Data Theme	Data Type	Status	Department	Data Custodian	Priority	Metadata	Comments
Agriculture and Food								
	Large/significant active agricultural lands	Polygon	Incomplete	DOA	Wayne Kasacek			USDA maintains farm boundary database
	Regional food markets	Point	Incomplete	DOA	Bob Pellegrino			
	Food distribution centers	Point	Incomplete	DCP				
	Aquaculture	Polygon & Polyline	Complete	DOA & DEP	Dave Carey		dataguide	
	Concentrated animal feeding operations	Polygon	Incomplete	DOA	Wayne Kasacek			
	Disease and diagnostic laboratories	Point	Incomplete	DPH	Uconn Exp. Stn - Rosalyn			
	Vaccine and biologic production facilities	Point	Incomplete	FDA				FDA maintains locational database; DOA maintains biological/toxin data and regulates the import/export of chickens.
	Commercial food processing facilities	Point	Incomplete	DOA				
Defense Industrial base								
	Submarine-related industry	Point	Incomplete	DPS				Congressional
	Military aircraft industry	Point	Incomplete	DPS				Congressional
	Aerospace industry	Point	Incomplete	DPS				Congressional
	Weapons Industry	Point	Incomplete	DPS				Congressional
Energy								
	Major power lines	Polyline	Incomplete	DPUC	Bill Palumba			Data agreement needed with NE utilities to obtain data
	Transfer/substations	Point	Incomplete	DPUC	Bill Palumba			
	Geothermal	Point	Incomplete	DPUC	Bill Palumba			
	Hydropower/electric	Point	Incomplete	DPUC	Bill Palumba			
	Natural gas facilities	Point	Incomplete	DPUC	Bill Palumba			
	Natural gas supply lines	Polyline	Incomplete	DPUC	Bill Palumba			
	Nuclear plants (active and decommissioned)	Point	Incomplete	DPUC	Bill Palumba			
	Petroleum storage and distribution centers	Point	Incomplete	DPUC	Bill Palumba			
	Petroleum supply lines	Polyline	Incomplete	DPUC	Bill Palumba			
	Energy companies' service areas	Polygon	Incomplete	DPUC	Bill Palumba			
Public Health and Healthcare								
	Hospitals	Point	In progress					
	CTDPH mobile hospital	Point	Incomplete					
	CTDPH State Public Health Laboratory	Point	In progress					
	Biological toxins distribution centers	Point	Incomplete					
	Local public health districts	Point	Incomplete					
	Nursing homes	Point	In progress					
	Walk-in clinics	Point	In progress					
	In-state approved commercial environmental laboratories	Point	Incomplete					
	State, municipal and industrial non-commercial environmental laboratories	Point	Incomplete					
National and State Monuments, Museums, and Icons								
	State Capitol	Point	In progress					
	Supreme Court building	Point	In progress					
	Legislative Office Building	Point	In progress					
	Nautilus Submarine	Point	Incomplete					
Banking and Finance								
	Major banking institutions within cities	Point	Incomplete					
	Financial and insurance institutions within cities	Point	Incomplete					
Drinking Water and Waste Treatment Facilities								
	Public water supply watersheds	Polygon						
	Public water supply reservoirs and dams	Polygon						
	Public water supply systems (main aqueducts, streams)	Polyline						
	Water supply service areas	Polygon						
	Aquifer protection areas	Polygon						
	Wells: Community Systems, Non-Transient Non-Community Systems, Transient Non-Community Systems	Point						
	Source protection areas	Polygon						
	Groundwater Susceptibility Analysis	Polygon						
	Potential drinking aquifers	Polygon						
	Water utility areas/districts	Polygon						
	Sewer service areas	Polygon	Complete	DEP			dataguide	
	Sewage treatment plants	Point						
Chemical								
	Storage and disposal facilities/businesses	Point	Incomplete					
Commercial Facilities								
	Major malls (regionally significant)	Point	Incomplete					
	Private Schools and colleges	Point	Incomplete					
	Amusement parks	Point	Incomplete					
	Business districts	Point	Incomplete					

	Gas stations, distribution centers	Point	Incomplete					
	Large home improvement stores	Point	Incomplete					
	Large entertainment (e.g., casinos)	Point	Incomplete					
Dams								
	Hydroelectric dams	Point	Complete	DEP			dataguide	
	Public water supply reservoir dams	Point	Complete	DEP			dataguide	
	High hazard dams or significant hazard dams	Point	Complete	DEP			dataguide	
	Flood control, dikes, levees	Polygon		DEP	Carla Feroni			
Emergency Services								
	Public Safety Answering Points/PSAPS (9-1-1 call centers)	Point	In progress					
	State and local Emergency Operation Centers	Point	In progress					
	Local fire facilities	Point	In progress					
	State police barracks	Point	In progress					
	DEP Emergency Response Unit facilities	Point	In progress					
	DEP Environmental Conservation Police offices	Point	In progress					
	DEP Environmental Conservation Police districts	Polygon	In progress					
	DEP Marine patrol locations	Point	In progress					
	DEP Marine patrol districts	Polygon	In progress					
	Emergency Medical Service (EMS) locations	Point	In progress					
	EMS regional council districts	Polygon	In progress					
	U.S. Coast Guard facilities	Point	In progress					
	U.S. Coast Guard districts	Polygon	In progress					
Commercial Nuclear Reactors, Materials and Waste								
	Millstone	Point	Incomplete					
	Defense/aerospace related industry facilities (?)	Point	Incomplete					
	Academic institutions	Point	Incomplete					
Information Technology								
	State information technology facilities and infrastructure (DOIT, Military, State Police, Judicial)	Point	Incomplete					
	Municipal information technology facilities and infrastructure	Point	Incomplete					
Telecommunications								
	State (State Police, Military, DMV (?), DOT, DPH) communications towers (radio and cell)	Point	Incomplete					
	Municipal (police and fire) communications towers	Point	Incomplete					
	Federal (?)	Point	Incomplete					
Postal and Shipping								
	U.S. Post Offices and U.S. mail distribution facilities	Point	Incomplete					
	Ports	Point	Incomplete					
	Commercial freight and mail carriers	Point	Incomplete					
Transportation Systems								
	Highways, routes, streets	Polyline	Complete	TeleAtlas				
	Airports major and minor	Polyline	Complete	DEP			metadata	
	Helipads	Point	Incomplete					
	Ports	Point	Incomplete					
	Railroads and stations	Polyline	Complete	DEP			metadata	
Government Facilities								
	Federal facilities	Polygon	Complete	DEP			dataguide	
	State facilities	Point	In progress	DPW				
	Municipal facilities	Point	Incomplete	DPW				
Critical Manufacturing								
	To be determined							

APPENDIX B: TGS HSIP Effort

NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY
4600 SANGAMORE ROAD
BETHESDA, MD 20816-5003

1. In the aftermath of the 9-11 terrorist attacks the National Geospatial-Intelligence Agency (NGA) and the US Geological Survey (USGS) developed the Homeland Security Infrastructure Program (HSIP). HSIP is a clearinghouse of mission-critical geospatial and remote sensing information required to increase readiness and knowledge about potential threats and vulnerabilities, and to reduce response and recovery times in the event of a natural or terrorist-caused disaster within the United States.

2. NGA realizes the importance of continually improving the HSIP data in order to have the most current and accurate information. The Department of Homeland Security (DHS) has recently partnered with NGA and USGS to form a cooperative partnership to support the continued HSIP data collection effort supporting the Homeland Security mission.

3. In its effort to build and maintain HSIP, NGA has relied heavily on license-restricted commodity data. While the use of these sources has been expedient, they have also restricted NGA from sharing this data outside the Federal Government. NGA and DHS see the value in establishing non license-restricted datasets utilizing data already in the hands of other Federal Agencies, State and Local authorities, and relevant non-government organizations (NGOs).

4. NGA is seeking potential partners to be involved in the collection, improvement, and mutual sharing of geospatial data for the HSIP program. As part of the cooperative effort, NGA will return to the partner all improvements that have been made to the partner's data. NGA has a substantial ongoing data improvement program. Enhancements have included improved geospatial location, increased attribution, improved completeness, and improved metadata. NGA can also make datasets available that it has assembled which are not license-restricted. In return NGA is asking partners to provide existing geospatial and non-geospatial data, and assistance in coordinating data improvement efforts with authorities within their jurisdiction.

5. NGA, through its contractor, will work with individual partners to update or improve their data as the partner feels is necessary. The contractor's methods normally involve phoning entities and asking them to describe their location relative to landmarks visible in aerial imagery. However, the partner may be able to provide insight that will enable the contractor to work more effectively. NGA, through its contractor, will consult partners concerning the nature, timing, and prioritization of data improvement efforts in their jurisdiction.

6. While NGA desires that all data assembled under this cooperative effort be distributed to all Federal, State, and Local authorities, as well as NGOs involved with disaster response, NGA is willing to work with partners to restrict sensitive data as they deem necessary.

NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY
4600 SANGAMORE ROAD
BETHESDA, MD 20816-5003

7. The NGA point of contact for this effort is Jane Dickerson, North America & Homeland Security Division Chief, 314-263-4778. The DHS point of contact is Steven Alness, Geospatial-Intelligence Program Manager, 202-282-8649. NGA's prime contractor for this program is Techni Graphics Systems, Inc. (TGS). The TGS point of contact is Mike Thompson, 330-263-6222.

Mr. John Goolgasian

John Goolgasian

Director
Office of Americas
National Geospatial-Intelligence Agency

NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY
4600 SANGAMORE ROAD
BETHESDA, MD 20816-5003

Homeland Security

1. The National Geospatial-Intelligence Agency (NGA) is the lead Federal Agency responsible for Geospatial Intelligence (GEOINT) within the Defense and Intelligence community, and is working to apply its geospatial expertise and analytic resources to the domestic Homeland Security mission. GEOINT is the analysis and visual representation of national security related activities on the earth. Many of the major Homeland Security and Homeland Defense organizations are now using NGA's GEOINT for a variety of tasks including situational awareness, critical infrastructure analysis, and preparation of vulnerability assessments over areas within the United States.

2. NGA, in meeting its requirement to provide GEOINT in partnership with the Department of Homeland Security, is building a single Homeland Security geospatial infrastructure database to fulfill the Homeland Security and Homeland Defense mission role and to meet the similar but distinct needs of many mission partners. Included in these efforts are the acquisition, improvement, and compilation of commercially available infrastructure data. In addition, to support its mission, NGA initiated a contract with TechniGraphicS, Inc. (TGS) to provide quality control, accuracy improvement, and maintenance for infrastructure datasets.

3. NGA's main data providers include the following commercial data vendors/contractors:

TechniGraphicS, Inc. (TGS)
Explore Information Services (EIS)
Dun & Bradstreet (D&B)
Ionic/MCH
NAVTEQ
Global Energy Decisions
Pennwell

4. In order to gather the most current and accurate data, these vendors use various methods to acquire data including: direct mailing, faxes, and telephone calls. The Department of Homeland Security, US NORTHCOM, and other Federal Agencies will all benefit from the availability and dissemination of this information collection as they incorporate and use this data in support of their Homeland Security and Homeland Defense missions.

5. Whenever possible, NGA will coordinate the activities of these contracts with other appropriate Federal Agencies and will work with the DHS State and Local Coordination Office to provide the necessary information with regard to our Federal Contract activities for Homeland Security. NGA understands that the demand for this data extends beyond just the Federal Government. Therefore, NGA is assessing the cost and other issues associated with the inclusion of non-federal entities, to include State,

NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY
4600 SANGAMORE ROAD
BETHESDA, MD 20816-5003

Local, Tribal Homeland Security, and Emergency Response Agencies, in the licenses of existing and future commercial data procurements. NGA will continue to work with DHS to address either the possibility of licensing this data to State/Local authorities (Release of the data), or providing access to State/Local authorities via a thin client web interface (Disclosure of the data).

6. NGA, DHS, and US NORTHCOM realize this information is sensitive and accepts the requirement for additional dissemination restrictions for this data. NGA is taking every measure possible to protect and ensure that the data and license restrictions are enforced. NGA is requiring its commercial contractors to adopt prudent security measures and to take every precaution to protect government information as well as the proprietary data they are collecting on behalf of the government. Because of these precautions and to ensure that the privacy of U.S. citizens, much of the detailed information being collected by our contractors will not be available to the public. Therefore, the data will not be made available commercially and will be protected from public release by the Federal Government.

7. The NGA point of contact for this effort is Jane Dickerson North America & Homeland Security Division Chief, 314-263-4778. The DHS point of contact is Steven Alness, Geospatial-Intelligence Program Manager, 202-282-8649.

Mr. John Goolgasian

John Goolgasian III

Director
Office of Americas
National Geospatial-Intelligence Agency

Mr. Robert Zitz

Robert S Zitz

Deputy Under Secretary
Preparedness Directorate
Department of Homeland Security

TechniGraphicS

FreedomWeb

TechniGraphicS

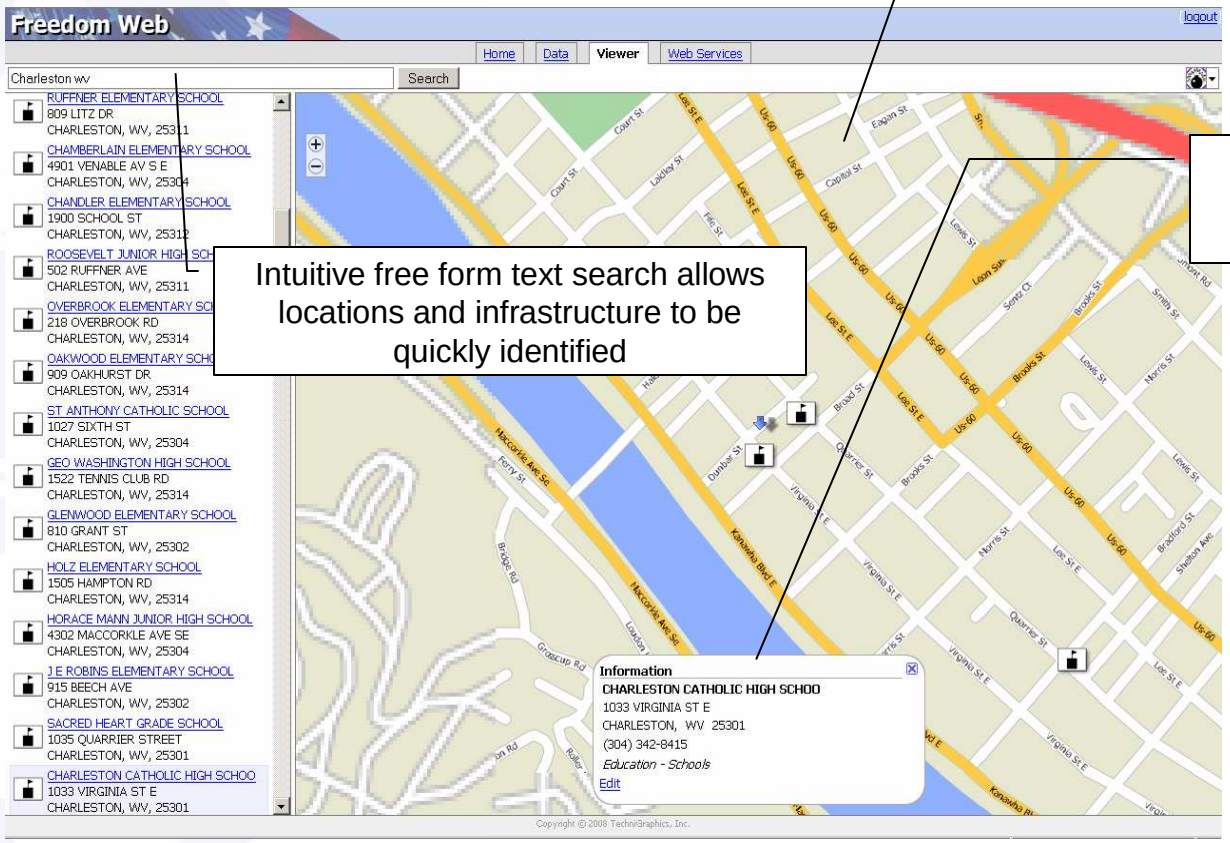
How?

- How do you make the power of geospatial available to non GIS professionals?
- How do you maintain data efficiently and effectively?
- How do you disseminate data that is seamless, consistent, and up to date?

How do you make the power of geospatial available to non GIS professionals?

Easy to use site

Intuitive map interface



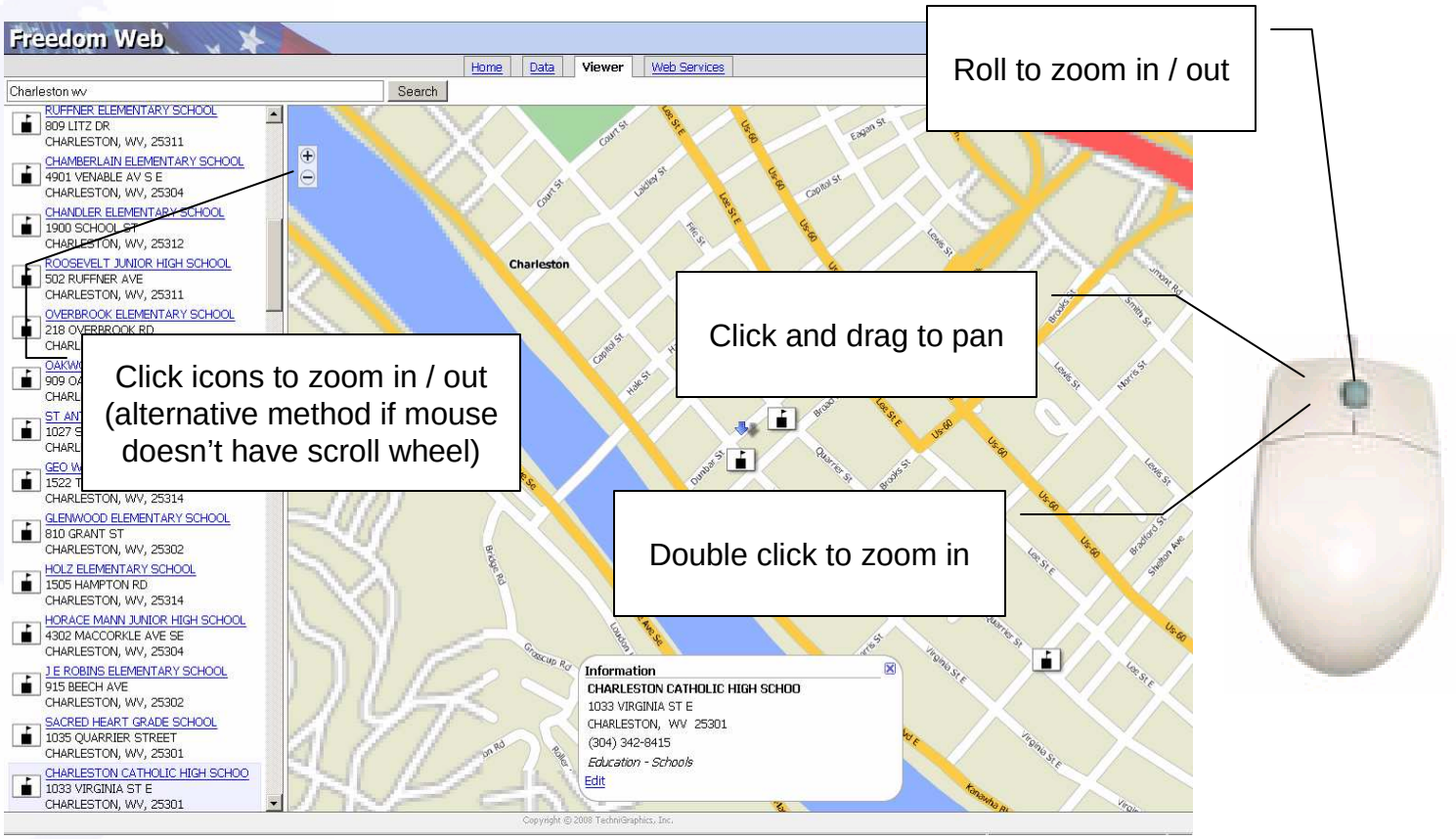
Intuitive free form text search allows locations and infrastructure to be quickly identified

Clicking on infrastructure icon brings up basic information

TechniGraphicS

How do you make the power of geospatial available to non GIS professionals?

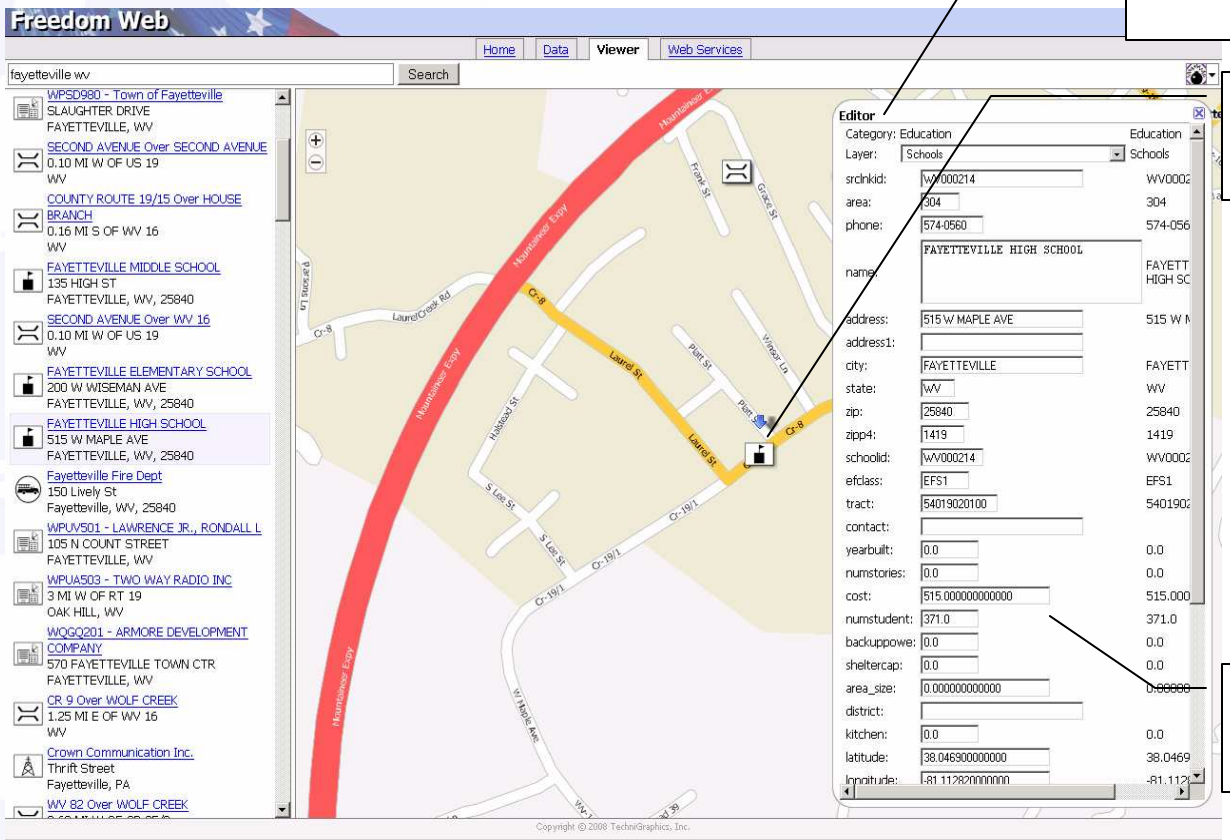
Simple, Intuitive Map Interface



TechniGraphicS

How do you maintain data efficiently and effectively?

Empower local officials to update data



Local officials who have first hand knowledge can update tabular data, and…

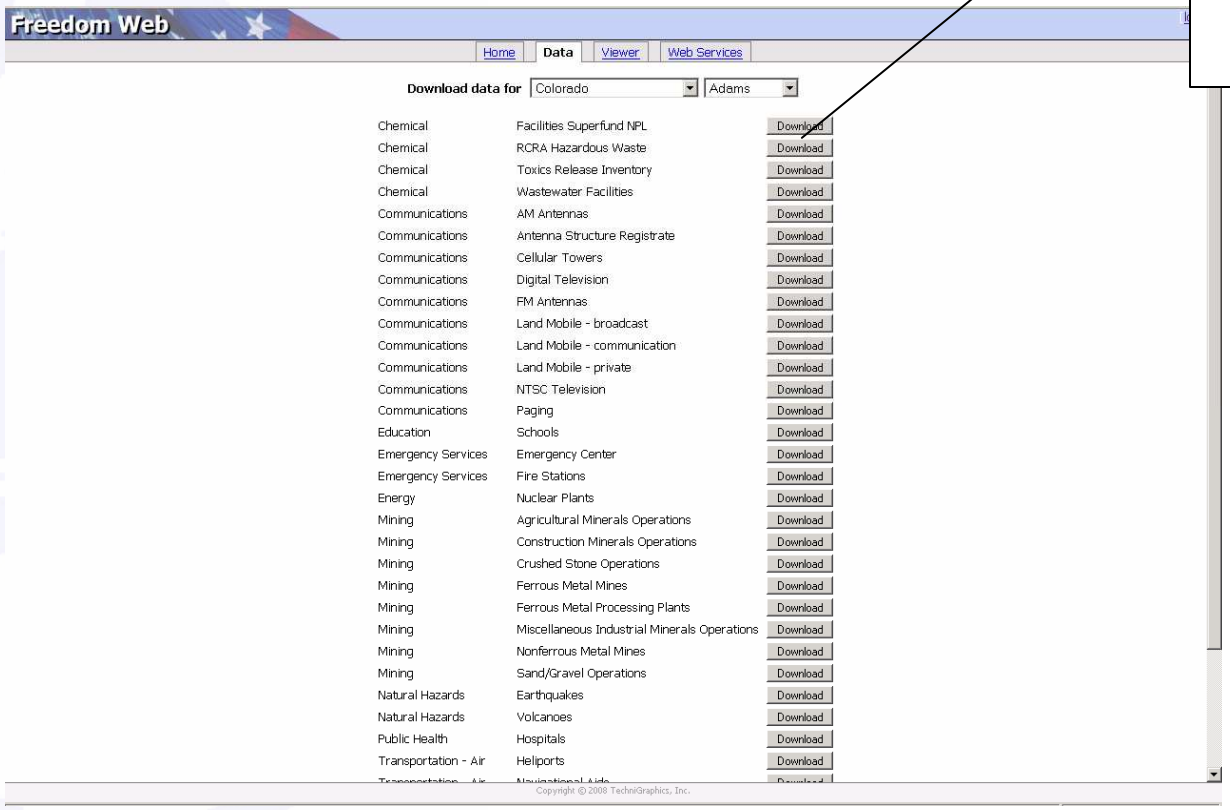
Drag infrastructure icons to improve spatial location

Edits are reviewed by TGS to insure accuracy and consistency

TechniGraphicS

How do you disseminate data that is seamless, consistent, and up to date?

OGC Web Services and Data Downloads



Data contained in FreedomWeb, including user made edits, are available for download, or…

users can connect via OGC WFS!

TechniGraphicS

How do you disseminate data that is seamless, consistent, and up to date?

"Seed" data provided with FreedomWeb

AM Antennas	Ferrous Metal Mines	Ferries
FM Antennas	Ferrous Metal Processing Plants	Locks
Colleges & Universities	MLB Stadiums	Ports
Flight Schools	NFL Stadiums	Dams
Fire Stations	Aero Navaids	Miscellaneous Industrial Minerals Ops
State EOC's	Aero Obstructions	Nonferrous Metal Mines
Nuclear Plants	Airports & Heliports	Nonferrous Metal Processing Plants
Local Police	FAA ARTCC	Refract Abrasive Other Industrial Mine Ops
State Police	Amtrak Stations	Sand Gravel Operations in US
University Police	Bridges	Volcanoes
Agriculture Minerals Operations	Intermodal Facilities	Hospitals
Crushed Stone Operations US	Transit Stations	

TechniGraphicS

Subscription Levels

- Free
  - View and edit data in single county (or city if city is in multiple counties)
- Paid
  - Access data over an expanded area (10 mile buffer around county for paid county level subscriptions, 50 mile buffer around state for paid state level subscriptions)
  - Connect to data through OGC web services
  - Download data

Prices

- County Subscription
  - $100 per named / locked user per year
- State Subscription
  - $1,000 per named / locked user per year
  - $2,000 per concurrent / floating user per year
  - 10 or more users: 10% Discount
  - 20 or more users: 20% Discount
  - 50 or more users: 30% Discount
- Regional / MSA / Custom Subscriptions
  - Available

APPENDIX C: HSIP

NSGIC

NATIONAL STATES GEOGRAPHIC INFORMATION COUNCIL

Sharing & Improving Critical Infrastructure Data

With the National Geospatial-Intelligence Agency & Department of Homeland Security

Information on the Homeland Security Infrastructure Program - What is HSIP?

December 18, 2006

"… HSIP will combine all … geospatial data, and Geospatial Intelligence products into a single, integrated database."

- Source: Homeland Security Infrastructure Program, Tiger Team Report (2002)

HSIP is a collection of base map layers and homeland security related geospatial data. There are many sources, including licensed commodity datasets and Federal & State agency data. The HSIP data was created for Federal government homeland security and homeland defense purposes. These data are only available to state and local governments for viewing purposes across a thin client network. This is referred to as "disclosure" in the Federal licensing agreements with the private sector contributors. However, Federal licenses also require that in the event of declared emergencies, that the data may be released to state and local governments to support their operations. Non-government organizations can not access the HSIP data.

Until now, this program has not provided for any actual sharing of data among local, state and Federal agencies. Recent tests involving Arkansas and Kansas proved that all parties can benefit from sharing and improving a single data set. The benefits include improvements in data completeness, spatial accuracy, and quality. **Ultimately, sharing and using the same data helps to ensure that decisions made in times of emergency will be consistent, and will provide for a common operational picture.**

How the Geospatial Data Sharing Program Works

Currently, the emphasis of this program is on sharing and improving data to create uniform state & Federal information on:

- Fire Stations
- EMS Stations & Ambulance Services
- Police Stations
- Prisons & Jails
- Hospitals & Urgent Care Clinics

Data provided by the states does not have to be in GIS formats. For many of these data layers, state agencies only maintain tabular data or relational databases that are required for licensing or other purposes. For any given layer, it is highly likely that some agency within your state has an authoritative list for that layer.

Participating states send letters, or use other appropriate methods to contact relevant officials (i.e. fire chiefs) to let them know about the program and to ask for their cooperation. An appropriate state government point of contact (POC) should be provided to officials so they can call if they have questions about the legitimacy of the program.

Contractors to the National Geospatial-Intelligence Agency (NGA) will accept, modify if appropriate, and quality control the data. Most improvements are done by telephoning local officials to verify the name, address, phone number, and geospatial location of their facilities. Geospatial location is determined by asking the local official to describe their location relative to landmarks visible in orthoimagery.

TechniGraphicS, Inc. incorporates the improved state data into the "License Free" HSIP products and makes them available to the states. They also incorporate the improved state data into HSIP and deliver it to NGA.

States are encouraged to share these improved data with the U.S. Geological Survey for use in The National Map and for the new generation of graphic products being produced at USGS for emergency responders.

There is no monetary cost to the states. Their contribution is the existing data and coordination with local officials.

How are these Data Layers Defined?

Fire Stations - Any location where fire fighters are stationed, or where their equipment is stored for ready use. Fire Departments not having a permanent location are included, in which case their location is depicted in the approximate center of the area served. This dataset includes those locations primarily engaged in forest or grasslands fire fighting, including fire lookout towers, provided the towers are in current use for fire protection purposes. This dataset includes both private and governmental entities.

EMS Stations - Any location where emergency medical service (EMS) personnel are stationed, or where their equipment is stored for ready use. The EMS dataset only includes providers that are mobile and does not include fixed location clinics or hospitals, as these are included in other HSIP datasets. Ambulance services are included even if they only provide transportation services, but not if they are located at, and operated by a hospital. If an independent ambulance service or EMS provider happens to be collocated with a hospital, it will be included in this dataset. EMS providers (first responders) are included even if they only provide treatment at the site of the incident and do not provide patient transportation. The dataset includes both private and governmental entities. Excluded from the dataset are locations that are only administrative offices.

Police Stations - Any location where sworn officers of a law enforcement agency are regularly based or stationed. Law enforcement agencies "are publicly funded and employ at least one full-time or part-time sworn officer with general arrest powers". This is the definition used by the US Department of Justice - Bureau of Justice Statistics (DOJ-BJS) for their Law Enforcement Management and Administrative Statistics (LEMAS) survey. Although LEMAS only includes non Federal Agencies, this dataset includes locations for Federal, state, local, and special jurisdiction law enforcement agencies. Law enforcement agencies include, but are not limited to, municipal police, county sheriffs, state police, school police, park police, railroad police, federal law enforcement agencies, departments within non law enforcement federal agencies charged with law enforcement (e.g. US Postal Inspectors), and cross jurisdictional authorities (e.g. Port Authority Police).

Jails and Prisons - Any facility or location where individuals are regularly and lawfully detained against their will. This includes Federal and state prisons, local jails and juvenile detention facilities as well as law enforcement temporary holding facilities. Work camps, including camps operated seasonally, are included if they otherwise meet the definition. A Federal Prison is a facility operated by the Federal Bureau of Prisons for the incarceration of individuals. A State Prison is a facility operated by a state, commonwealth or territory of the US for the incarceration of individuals for a term usually longer than 1 year. A Juvenile Detention Facility is a facility for the incarceration of those who have not yet reached the age of majority (usually 18 years). A Local Jail is a locally administered facility that holds inmates beyond arraignment (usually 72 hours) and is staffed by municipal or county employees. A temporary holding facility, sometimes referred to as a "police lock up" or "drunk tank", is a facility used to detain people prior to arraignment. Locations that are only administrative offices are excluded from the dataset. This definition of Jails is consistent with that used by the Department of Justice (DOJ) in their "National Jail Census", with the exception of "temporary holding facilities", which the DOJ excludes.

Hospitals - Any institutions that are:

1. Primarily engaged in providing, by or under the supervision of physicians, to inpatients (A) diagnostic services and therapeutic services for medical diagnosis, treatment, and care of injured, disabled, or sick persons, or (B) rehabilitation services for the rehabilitation of injured, disabled, or sick persons;

2. Provide 24-hour nursing services rendered or supervised by a registered professional nurse, and has a licensed practical nurse or registered professional nurse on duty at all times;

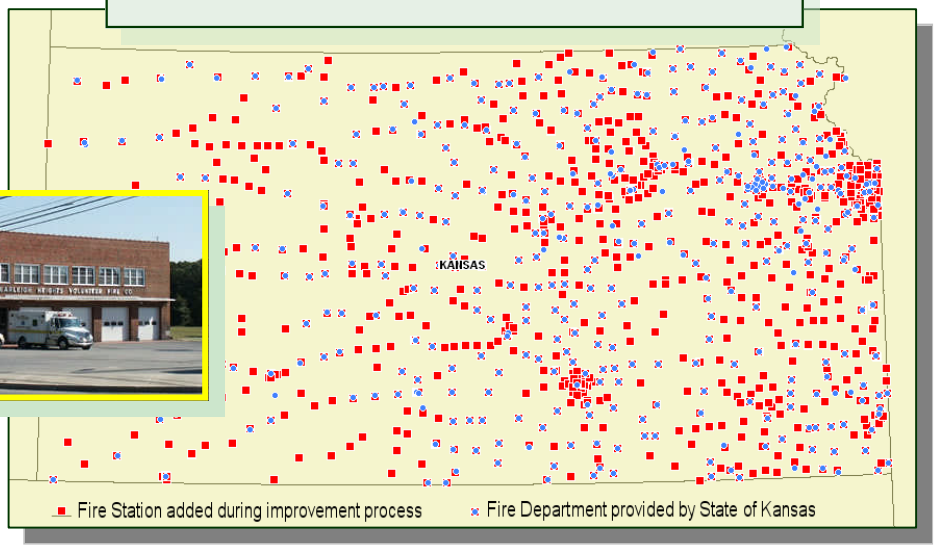
3. Require licensing as hospitals by state or applicable local law and are (A) licensed pursuant to such law or (B) approved by the agency of such State or locality responsible for licensing hospitals, as meeting the standards established for such licensing. Hospitals operated by the Federal Government are included, such as military and VA hospitals, even if they are not licensed by the state they are located in, as long as they otherwise meet the definition.

Included in this dataset are General Medical and Surgical Hospitals, Psychiatric and Substance Abuse Hospitals, and Specialty Hospitals (i.e. Children's Hospi-

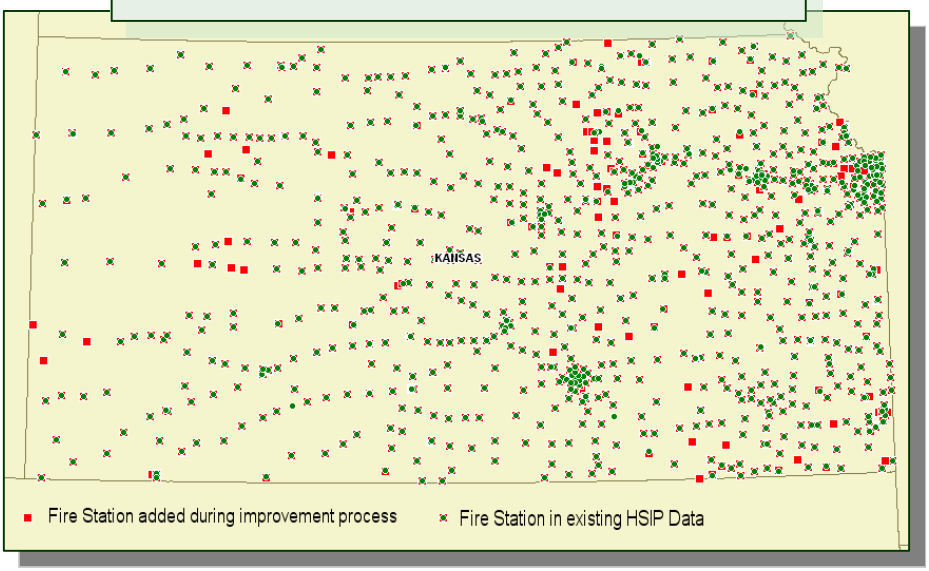
(Continued on page 3)

Examples of Data Improvements for Completeness

Improvements to State Data for Completeness
351 Fire Stations were added to the Kansas data



Improvements to HSIP Data for Completeness
104 Fire Stations were added to HSIP



"The NGA/TGS/State Data Sharing [initiative] has provided a mechanism for Kansas to gather much needed critical infrastructure locations with higher accuracy and more timeliness than the state could possibly accomplish on its own. Due to this partnership it has raised the awareness level in both our local emergency managers and our first responders to the happenings and importance of geospatial technology throughout the state.

This has in turn allowed state emergency management officials to more quickly learn of federal level initiatives happening at the local level and to provide them needed guidance when a sensitive inquiry from a contractor is made."

Jessica P. Frye
Kansas Homeland Security GIS Coordinator
Adjutant General's Department

How are these Data Layers Defined? (continued)

tals, Cancer Hospitals, Maternity Hospitals, Rehabilitation Hospitals, etc.).

Urgent Care Clinics - Urgent care is defined as the delivery of ambulatory medical care outside of a hospital emergency department on a walk-in basis without a scheduled appointment. (Source: Urgent Care Association of America). The Urgent Care dataset consists of any location that is capable of providing emergency medical care and must provide emergency medical treatment beyond what can normally be provided by an EMS unit, perform surgery, or provide recuperative care beyond what is normally provided by a doctors office. In times of emergency the facility must be able to accept patients from the general population, or patients from a significant subset of the general population (e.g. children). Entities that are excluded from this dataset are administrative offices, physician offices, workman compensation facilities, and hospitals. Urgent Care facilities that are operated by, and collocated with, a hospital are also excluded because they are included in the hospital dataset.

ABOUT NSGIC — The National States Geographic Information Council (NSGIC) is an organization of States committed to efficient and effective government through the prudent adoption of geospatial information technologies. Members of NSGIC include delegations of state GIS coordinators and senior state GIS managers from across the United States. Other members include representatives from Federal agencies, local government, the private sector, academia and other professional organizations. A rich and diverse group, the NSGIC membership includes nationally and internationally recognized experts in GIS, geospatial data production and management, and informa-

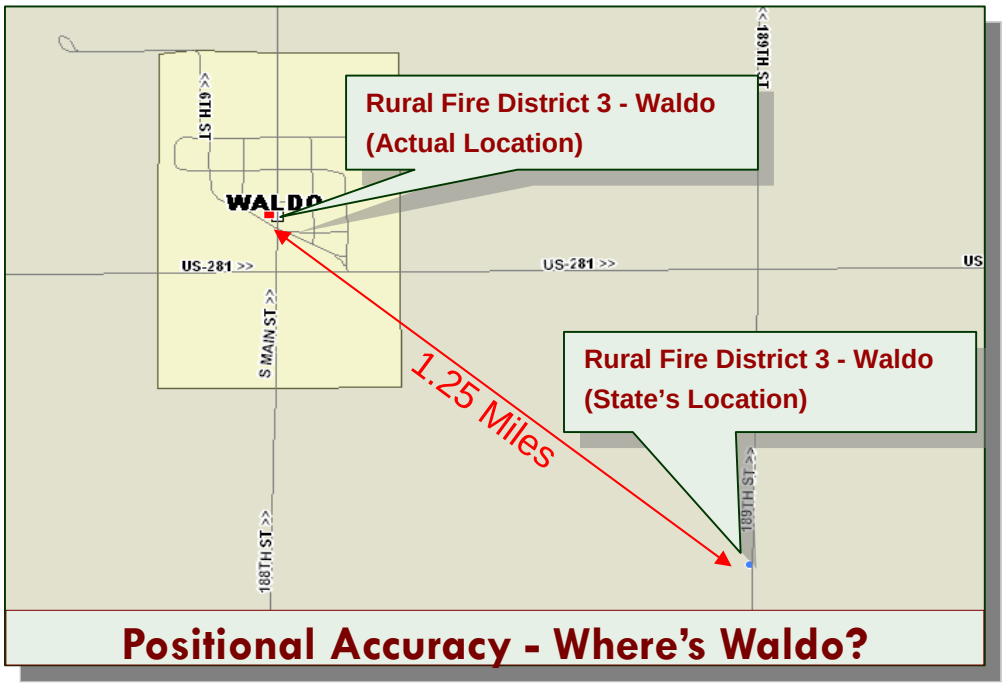
NSGIC

Building the NSDI one state at a time.

National States Geographic Information Council
2105 Laurel Bush Road
Bel Air, Maryland 21015
443-640-1075 x110
nsgic@ksgroup.org
http://www.nsgic.org

Why Should You Care and How Do You Get Started?

NSGIC has been a proponent of similar data sharing partnerships throughout its history. In 2005 NSGIC sent a letter to the National Geospatial-Intelligence Agency (NGA) asking them to consider such a program. NGA and the Department of Homeland Security (DHS) have worked together to create this opportunity, because it serves everyone's needs. They published a letter explaining this partnership opportunity, a "credentials" letter that certifies the contractors involved in this process, and a sample letter that you can send to local officials or statewide organizations on your letterhead to help explain this program.



Typically data improvements are achieved by making personal calls to officials to verify their information and asking them to describe their facility location relative to features visible in orthoimagery. The contractor will listen to you about the nature of your data and what the most appropriate improvement activities might be. It may be that no improvements are necessary, in which case, they will simply validate that fact and forward the data to NGA for inclusion in the HSIP program.

The success of this program depends on you. Central authorities in each state must provide a conduit to state and local agencies to inform them about the program and solicit their support. This effort will not tie-up resources in your production facilities.

For further information on this data sharing and improvement program, please contact the following individuals:

State of Arkansas

Learon Dalby, GIS Program Manager
501-682-2929
Learon.Dalby@arkansas.gov

State of Kansas

Ivan Weichert, GIS Director
785-296-0257
ivan.weichert@da.state.ks.us

TechniGraphicS, Inc.

Mike Thompson
(800)-832-8779
mike.thompson@tgstech.com

National Geospatial-Intelligence Agency (NGA)

Jane Dickerson, Chief
North America & Homeland Security Division (NGA)
314-263-4778

Steven Alness, Program Manager, Geospatial-Intelligence
202-282-8649

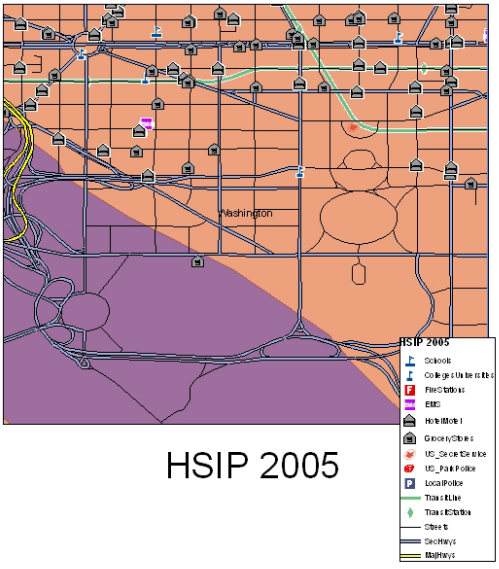
Introduction: the purpose of briefing is to inform the Admiral of the imminent release of the HSIP Gold 2007 deliverable to the Federal homeland security community. There is no particular intelligence issue to be briefed.

HSIP Gold is the vector database of choice for DHS and is the database displayed in ICAV, the DHS equivalent of Palanterra. Since the August 2005 release of HSIP Gold, the federal homeland security, homeland defense, and emergency preparedness, response, and recovery community has provided significant and in-depth feedback on ways to improve HSIP Gold. Since November 2006, PMHP has been working with the Homeland Infrastructure Feature-Level Data working group (HIFLD) to implement several of those community requests as we have worked on the new release of data for 2007.

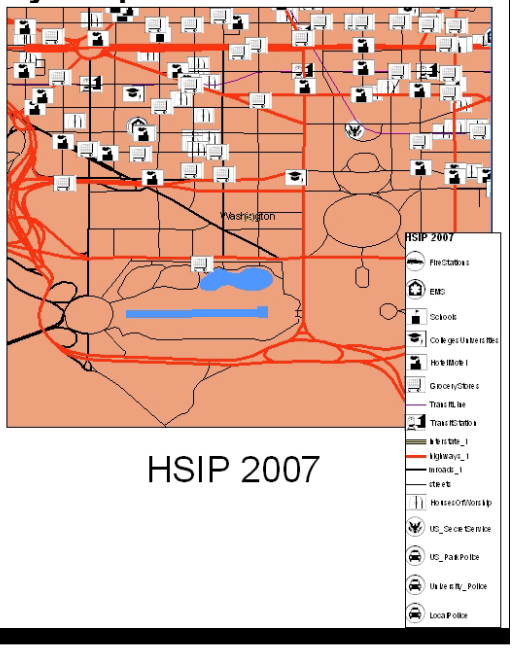
What HSIP Gold 2007 is and isn't

- What it is:
  - A unified homeland infrastructure geospatial data inventory assembled by NGA in partnership with the DHS for common use by the HLS/HD Community
  - Compilation of best available license-free Federal government and commercial proprietary data
- What it isn't:
  - The complete answer to all HLS/HD Community geospatial data needs
  - A static product

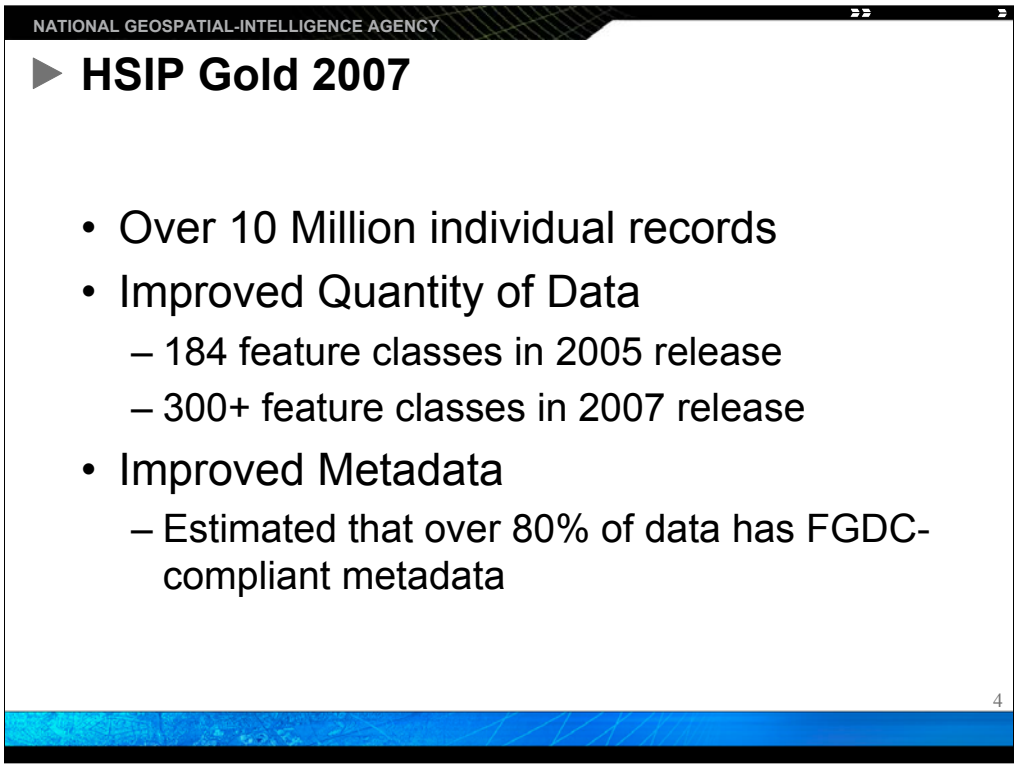
HSIP Symbology Comparison: Populated Places & Law Enforcement/Emergency Response



HSIP 2005



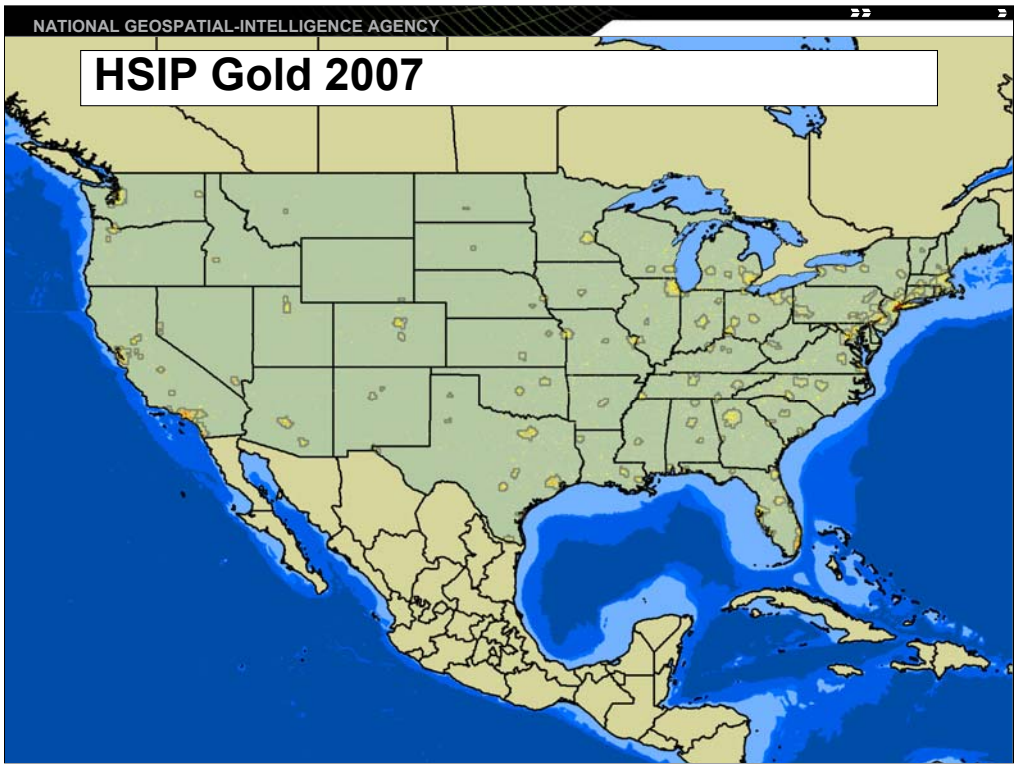
HSIP 2007



HSIP Gold 2007 represents a significant improvement in both quality and quantity of data over the first version, released in 2005. Working with the Homeland Infrastructure Feature-Level Data Working Group (HIFLD), we have added almost 75 datasets provided by Federal partners, including the EPA, FAA, DISDI, US Army Corps of Engineers, DHS, USGS, and Department of Interior. We have added over 50% more feature classes. Our contract partner, Technigraphics (TGS) has provided improved geometries for several critical infrastructure datasets, including hospitals, police and fire stations, and EMS stations. We have also made a significant push to data providers to submit FGDC-compliant metadata with their datasets. We estimate that about 80% of the datasets have minimally compliant metadata, providing the basic information on how current and complete the data is, and how the data was compiled. Several data providers, however, have gone well beyond the minimal standard and have provided truly valuable, in-depth information on the datasets they have provided. On the whole, we believe that HSIP Gold 2007 represents a significant improvement over the 2005 release. A few examples follow.

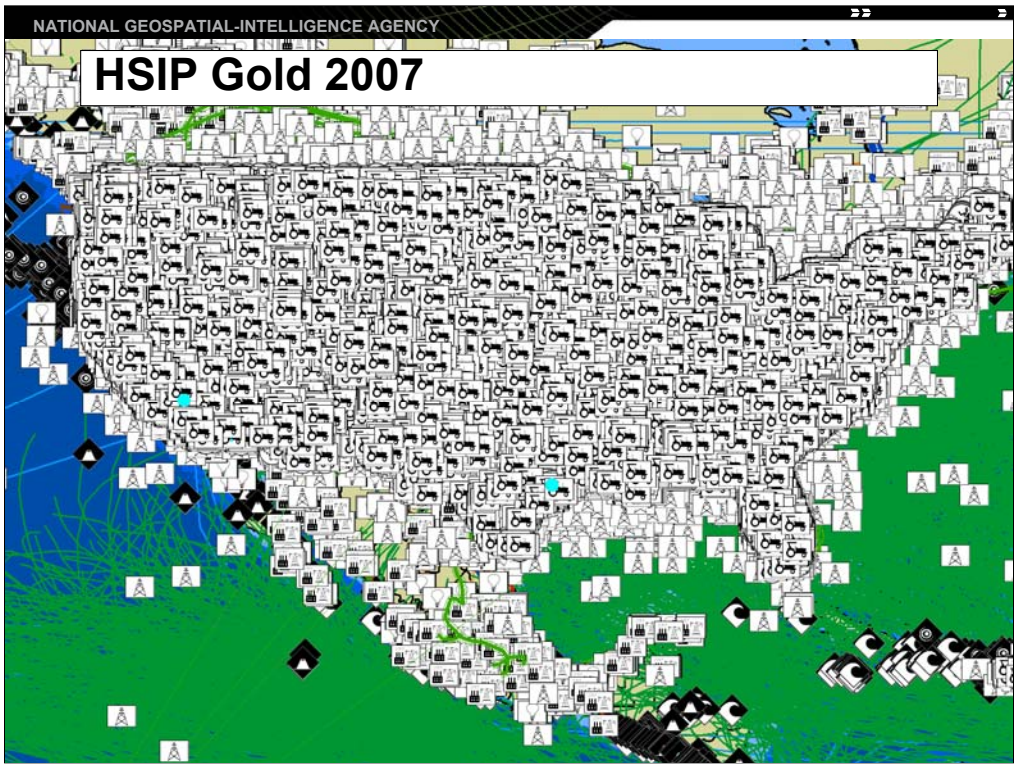
Select HSIP Gold Data Sources

- **USGS** – Base Map, Geological Hazards, etc.
- **Census Bureau** – Urban Clusters, Urban Areas
- **NAVTEQ** – US Road Infrastructure, Commercial Facilities, Public Venues, etc.
- **EXPLORE** – Nation-wide Fire Stations, State & Local Police Stations, Federal Law Enforcement Facilities, Correctional Facilities
- **Dun & Bradstreet** – Business Points Database extracts
- **Techni-GraphicS (TGS)** – Manufacturing, State Government, "Improved" Datasets
- **IONIC/MCH** – Emergency Services Data (Hospitals, Ambulance Services, Nursing Homes, Child Care Centers, Schools, etc.)
- **Global Energy and PennWell** – Energy Infrastructure
- **Nuclear Regulatory Commission (NRC)** – Nuclear Reactors, Material
- **FCC, GeoTel** – Telecommunications Infrastructure
- **DHS, US Coast Guard, National Guard** – Government Facilities
- **Corps of Engineers** – Port Facilities, Dams, Locks, Navigable Waterways
- **Dept. of Transportation** – Air and Mass Transit Transportation Data, National Bridge Inventory (NBI)
- **EPA** – Toxic and Flammable Chemical Storage, Toxic Release Inventory (TRI), Superfund Sites, Wastewater Facilities
- **Oak Ridge National Lab** – LandScan USA, National Rail Database



(The initial graphic that will display, showing the continental 48 states, depicts only the DHS-defined 133 urban areas of highest interest and concern for homeland security.)

This second graphic depicts all 300+ datasets (over 10 million records) over North America, including the 100-mile band into Canada covered under the terms of the Cross-border Infrastructure Program (CBIP). Our purpose in including this graphic is merely to illustrate the volume, completeness, and variety of the HSIP Gold 2007 data. To help you appreciate the finer details of HSIP Gold, we have a couple of graphics displaying select datasets at the state and city level.



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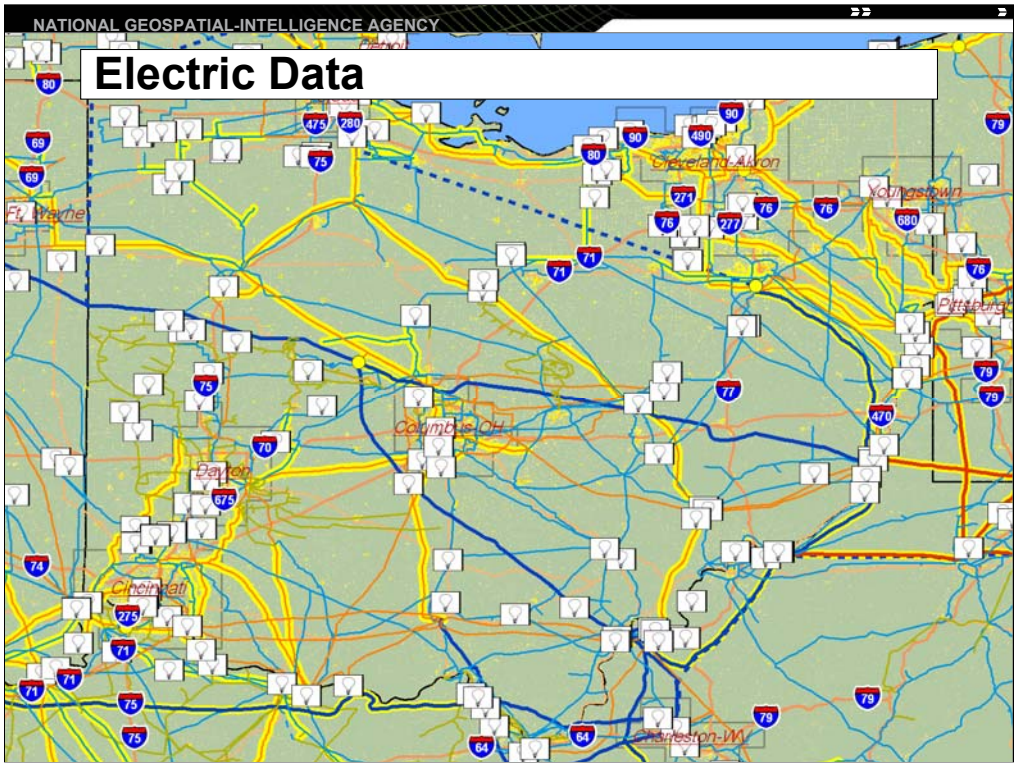
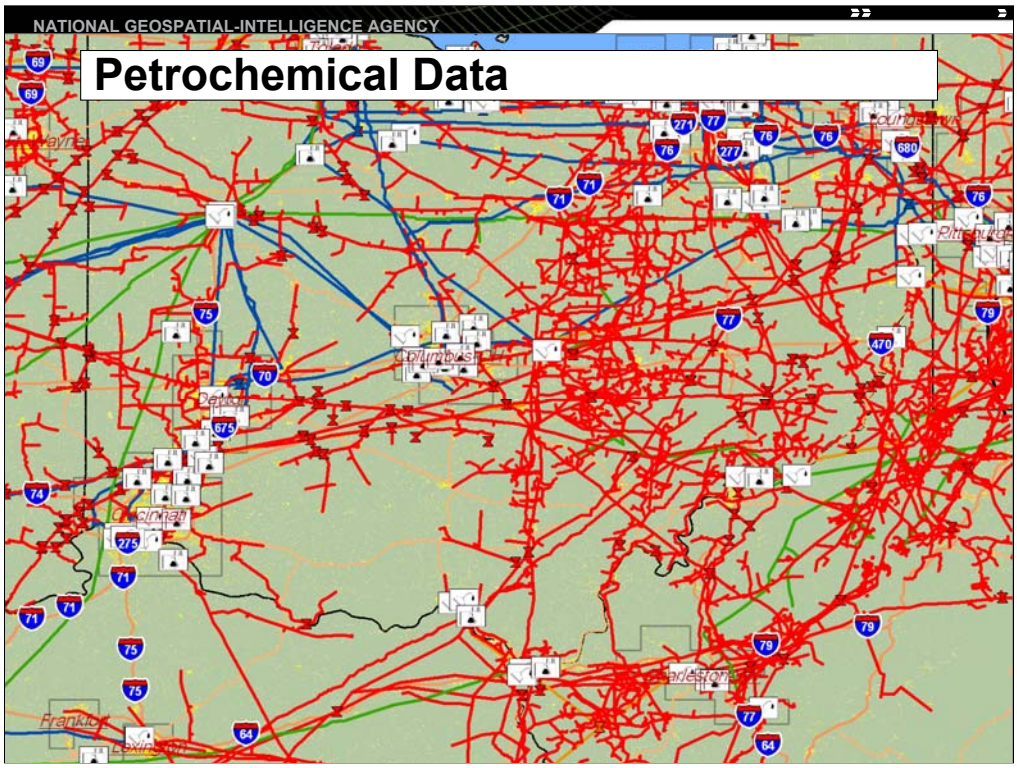
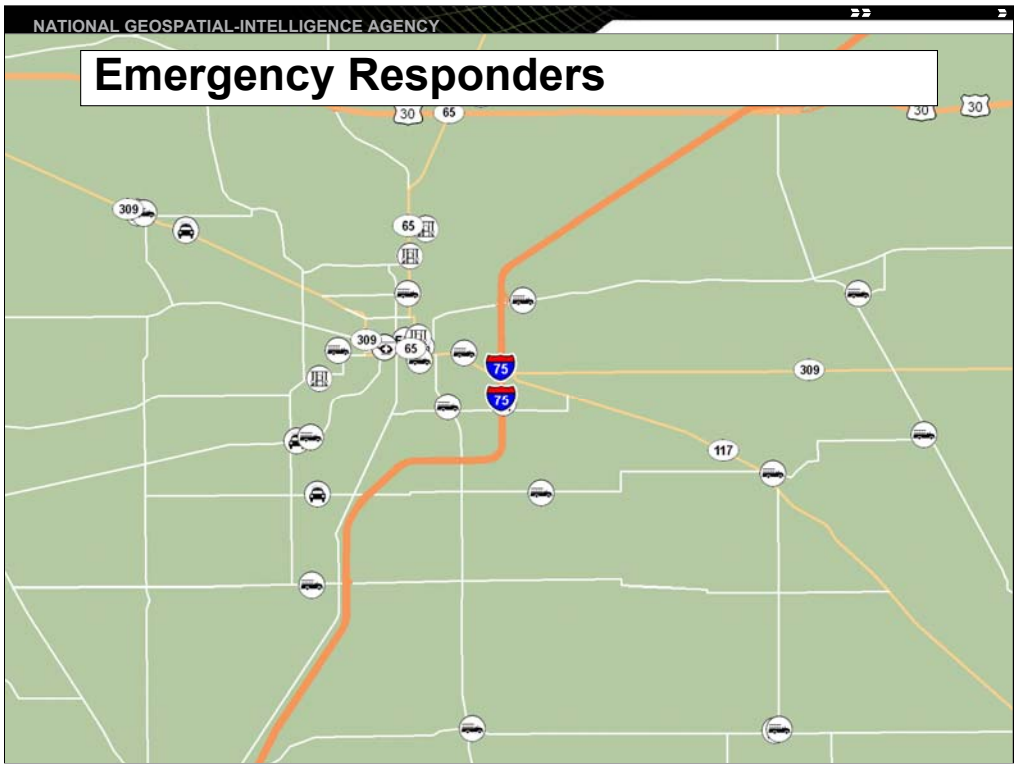


The electric data depicts not only the geometry of the nation's power grid, but also conveys information on the voltage for each power line. At finer scales of detail, the dataset depicts the location of transformer stations, power plants and generators, and local utilities. The previous version of HSIP Gold was far less complete and did not differentiate between different voltage levels. Consequently, lower voltage lines did not appear in the data, and much of the local-level data was missing.



This graphic displays oil and gas pipelines, again showing by means of color the different products conveyed and the size of the pipelines. The previous version of HSIP Gold depicted only the geometry of the pipeline system, with no differentiation by size and product.



This slide demonstrates the depth of detail within HSIP Gold. The depicted city, Lima, OH—population 40,000--is not one of the 133 DHS urban areas. Yet HSIP Gold provides data on 26 points for fire stations, hospitals, ambulance services, and medical airlift facilities in the vicinity of Lima.

We hope to show through these few examples the high value vector data NGA is providing to the federal community for homeland security, homeland defense, and emergency response and recovery purposes. PMHP is working with HIFLD and TGS to continue to improve HSIP Gold and to expand the potential pool of users to include state and local agencies. The goal is to make HSIP Gold available for planning and training prior to an emergency or disaster. Under the current proper use terms—primarily based on the restrictions of our commercial data licenses—we are unable to share HSIP Gold with state and local agencies until after the President declares a state of emergency, at which point the HSIP Gold data is of little practical use to the state and local user.

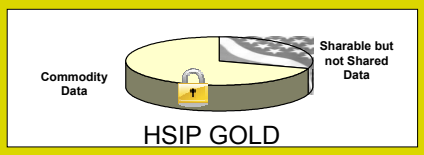
HSIP GOLD 2007 Restrictions

- Data has limited utility at the state and local level
- Why ?
  - Current licenses restrict sharing HSIP Gold with state and local authorities until the declaration of a Federal state of emergency, at which point the data is too late to be useful.
- What is needed to fix this?
  - Money to upgrade the licenses
  - A different approach to data sources

HSIP Freedom

- Conceptually –
  - Partnership effort to gather and improve existing government-owned, license-free data.
  - Sharing and distribution of above license-free data to officials at all levels of government (local, state and Federal).*

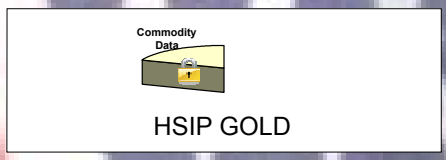
NOW → FUTURE



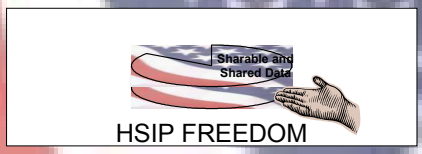
HSIP GOLD

HSIP GOLD

• Contains a large percentage of Commodity data licensed for Federal use only.
• Contains a significant amount of sharable data, but is not currently shared. These are government datasets, or ones constructed by government contractors.



HSIP GOLD



HSIP FREEDOM

HSIP FREEDOM

• Amount of sharable data will increase
• All sharable data will be shared at all levels of Government.

HSIP GOLD

• Some specialty commodity data will remain.
• May be small overlap with HSIP Freedom in special cases.

How It Works

- State provides existing government-owned data
- State and TGS agree on the best way to update / improve data
- State coordinates improvement effort
- TGS updates / improves data
- Improved data is returned to state
- State determines how its data will be handled / protected for non-Federal users.
- Improved data is provided to NGA
- No cost to state

Benefits

- Users of HSIP get better more complete data
- States get their existing data updated
- Federal, State and Local authorities have a Common Operating Picture
- More Feedback on data quality from local users

Status

- 33 States / territories have agreed to participate
- 16 Additional states / territories expressed an interest in participating

Communication

State GIS Coordinator

State DHS or Emergency Management Agency

Program Partners Working Group

- Joint DHS, NGA, USGS partnership
- Responsible for establishing data standards, determining collection priorities and schedules, and maintaining and serving data for Homeland Security geospatial information.
- Discussions, planning, and execution by first line analysts in subcommittees.
- PPWG comprises managers responsible for oversight and reporting of activities.
- Formalizes and federalizes HSIP-related activities.

NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY

Know the Earth…Show the Way

HSIP Freedom

Jane Dickerson
25 March 2007
NSGIC Conference
(636) 321-5862

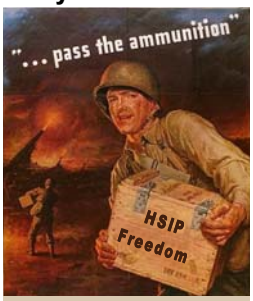
NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY

What is HSIP Freedom?

- Partnerships to gather and improve existing government-owned, license-free data.
- Sharing and distribution of above license-free data to officials at all levels of government (local, state and Federal).*

* Need non DoD Agency to sponsor distribution of HSIP Freedom.

Why HSIP Freedom?



TOOLS TO FIGHT

TERROR

- Current licenses restrict sharing HSIP Gold with state and local authorities until the declaration of a Federal state of emergency, at which point the data is too late to be useful.
- Americans on the front lines of the war on terror have the greatest need for geospatial data.
- It is important that Americans fighting terror on different fronts (local, state, Federal) have interoperable weapons. In other words, the same data.

NOW → FUTURE

HSIP GOLD

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- Contains a significant amount of sharable data, but is not currently shared. These are government datasets, or ones constructed by government contractors.

HSIP FREEDOM

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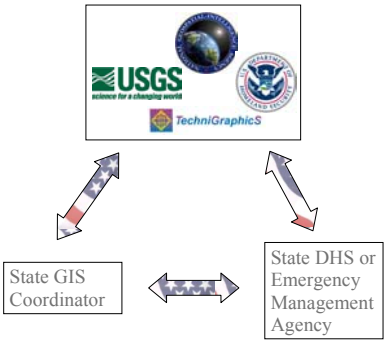
Communication



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NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY

Know the Earth...Show the Way


HSIP Cooperation and Mutual Sharing

Outline

- What is the Homeland Security Infrastructure Program (HSIP) Currently?
- What is Contractor's Current Role?
- Cooperation: A Better Idea
- Frequently Asked Questions (FAQs)

What is HSIP Currently?

- "… the HSIP will combine all NIMA Homeland Security commercial imagery, geospatial data, and Geospatial Intelligence products into a single, integrated database."
  - **Source:** ***Homeland Security Infrastructure Program, Tiger Team Report.***
- Collection of base map layers and homeland security related geospatial data.
- Sources: mainly licensed commodity datasets, some Federal sources
- Federal Government homeland security use only
  - *Local governments and state governments may only view data through a thin client ("disclosure")*
  - *In the event of an emergency, data may be released to state and local governments.*
  - *NGOs (e.g. Red Cross) may not access the data*

What is The Contractor's Role?

- It was determined that HSIP data from some sources needed to be improved to meet the homeland security mission. Therefore a contractor was tasked with:

  - Authoring FGDC Compliant Metadata
  - Analyzing Quality
  - Verify and Validate in cases where there are questions (typically 50%)

*** Only Some HSIP Layers Have Been Improved Through this Process ***

What is The Contractor's Role?

How is it Done?

- Phone Verify & Locate
- Internal QC and Automated Checks
- Author and Check Metadata

What is The Contractor's Role?
How is it Done?

Phone Verify & PinPoint

Phone calls and reference GIS layers are used to locate entities/assets relative to base map layers.

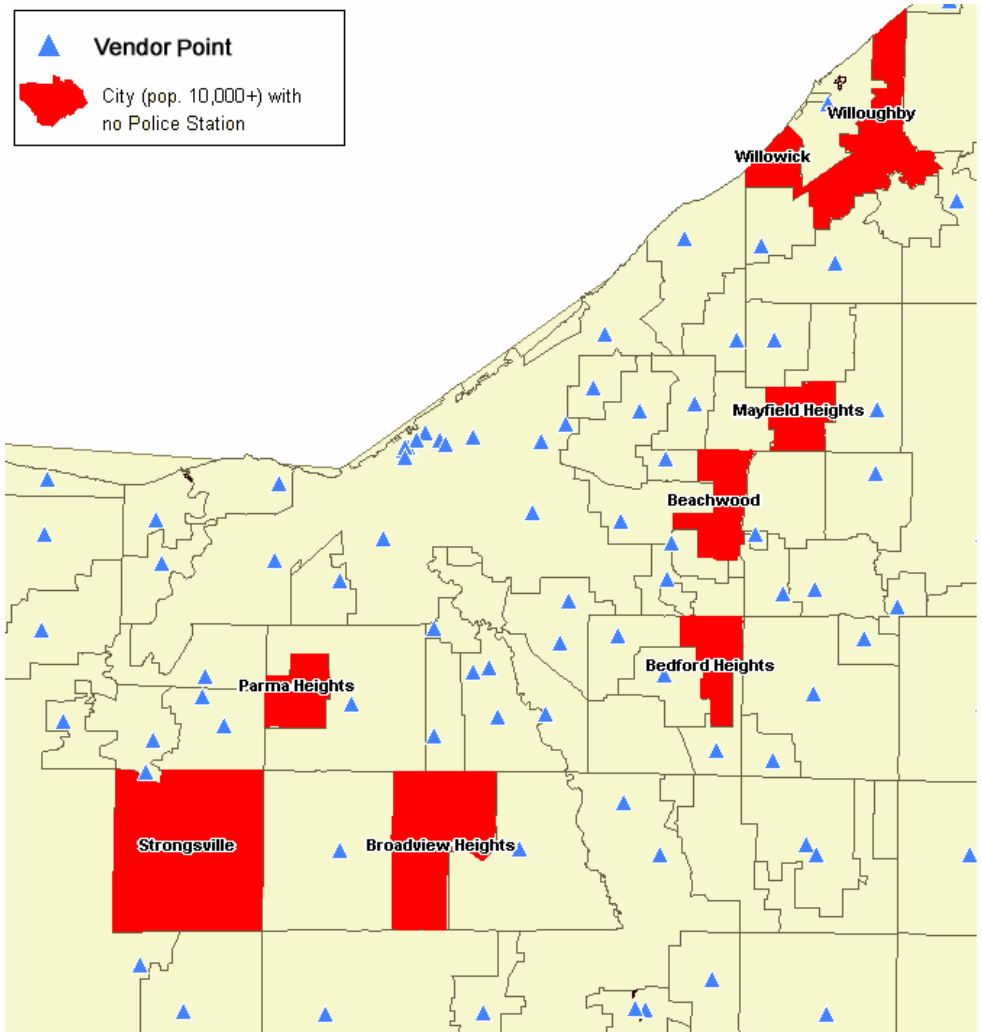
We call this process PinPointing

What is The Contractor's Role?

How is it Done?

Finding Missing Entities

Demographic Analysis



This example from the Cleveland Ohio area shows that some of the suburbs are missing coverage in the law enforcement dataset.

Comparison with Other Sources

- NAVTEQ land use polygon layer
- NAVTEQ POI information
- Geographic Names Information System (GNIS)
- FEMA HAZUS
- US Census Bureau TIGER Line Landmarks
- Data obtained from public domain (usually state or other Federal Agencies) sources.
- Data (sometimes in summary form) obtained from industry associations.

What is The Contractor's Role?
How is it Done?

Automated Checks

Zip City Check

```
Entity, City, State and Zip:  MCGRATH, AK 99557
   Dist from entity to McGrath:  107
   Dist from entity to 99557:  0
City and State for 99557:  ANIAK AK (USPS Preferred)
City and State for 99557:  CHUATHBALUK AK
City and State for 99557:  STONY RIVER AK
Zip code for MCGRATH AK:  99627

Entity, City, State and Zip:  GRUVER, IA 57334
   Dist from entity to Gruver:  0
   Dist from entity to 57334:  158
City and State for 57334:  ETHAN SD (USPS Preferred)
Zip code for GRUVER IA:  51334

Entity, City, State and Zip:  GALUESTON, IN 46932
   Dist from entity to :  <city not found>
   Dist from entity to 46932:  0
City and State for 46932:  GALVESTON IN (USPS Preferred)

Entity, City, State and Zip:  MAYFIELD, KS 66862
   Dist from entity to Mayfield:  82
   Dist from entity to 66862:  0
City and State for 66862:  MATFIELD GREEN KS (USPS Preferred)
Zip code for MAYFIELD KS:  67103
```

These zip codes only differ by only one digit, but are about 160 miles apart.

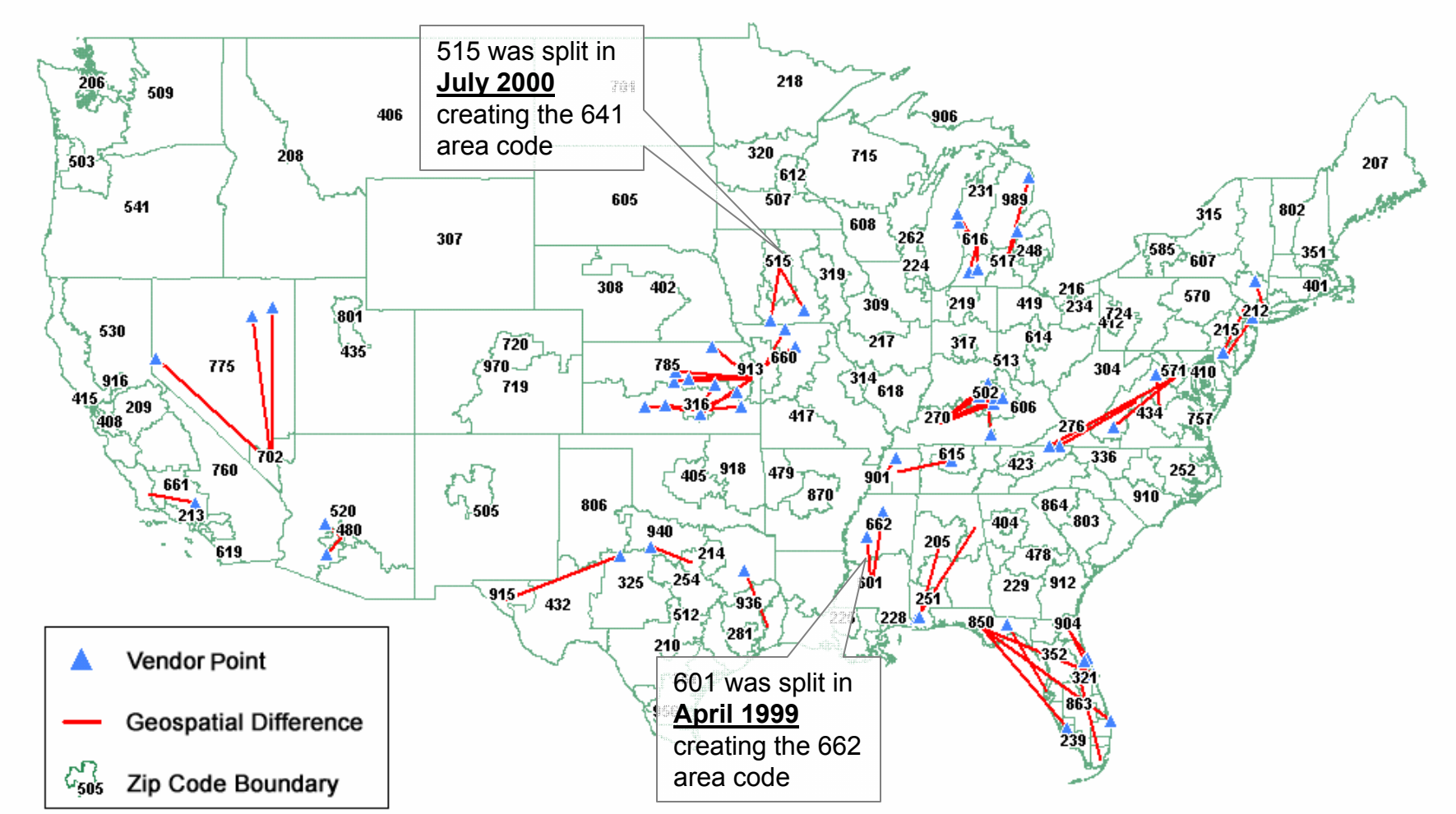
In this case the city name was misspelled

These two cities are phonetically similar but are about 80 miles apart

What is The Contractor's Role?
How is it Done?

Automated Checks

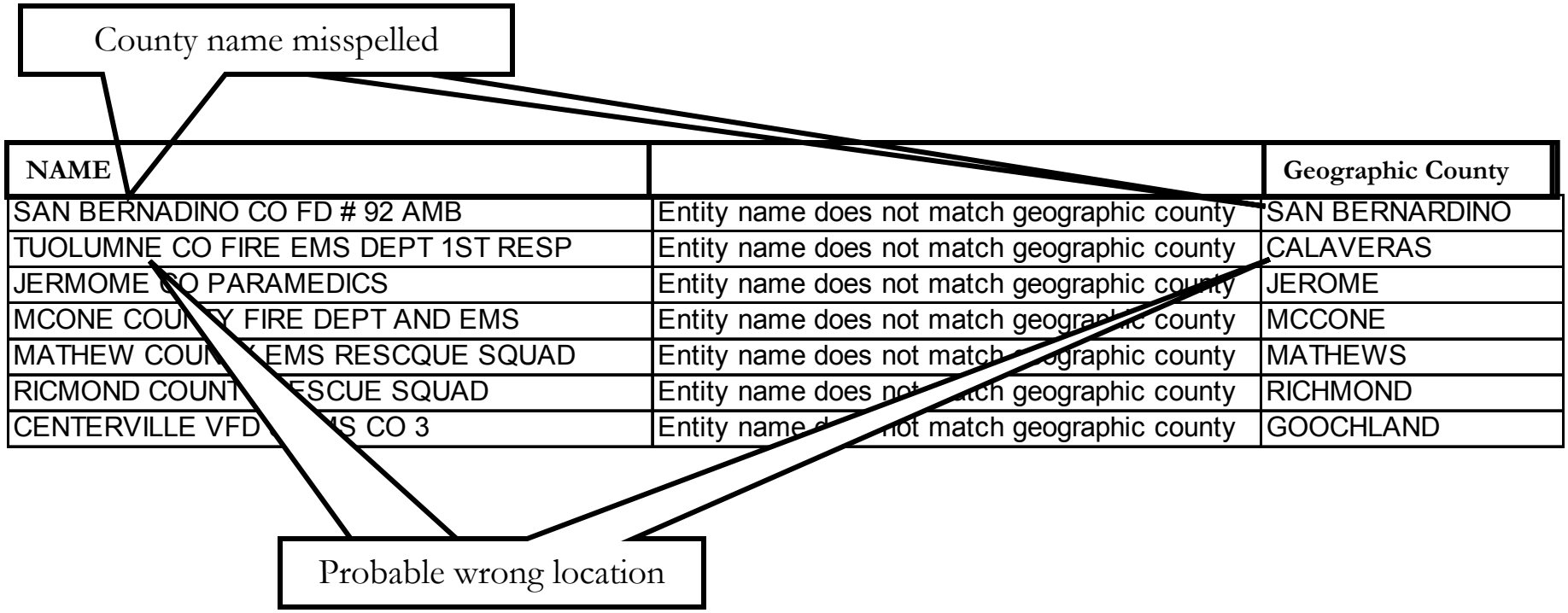
Area Code Distance Check



What is The Contractor's Role?
How is it Done?

Automated Checks

County in Name Vs. Geographic Location Check

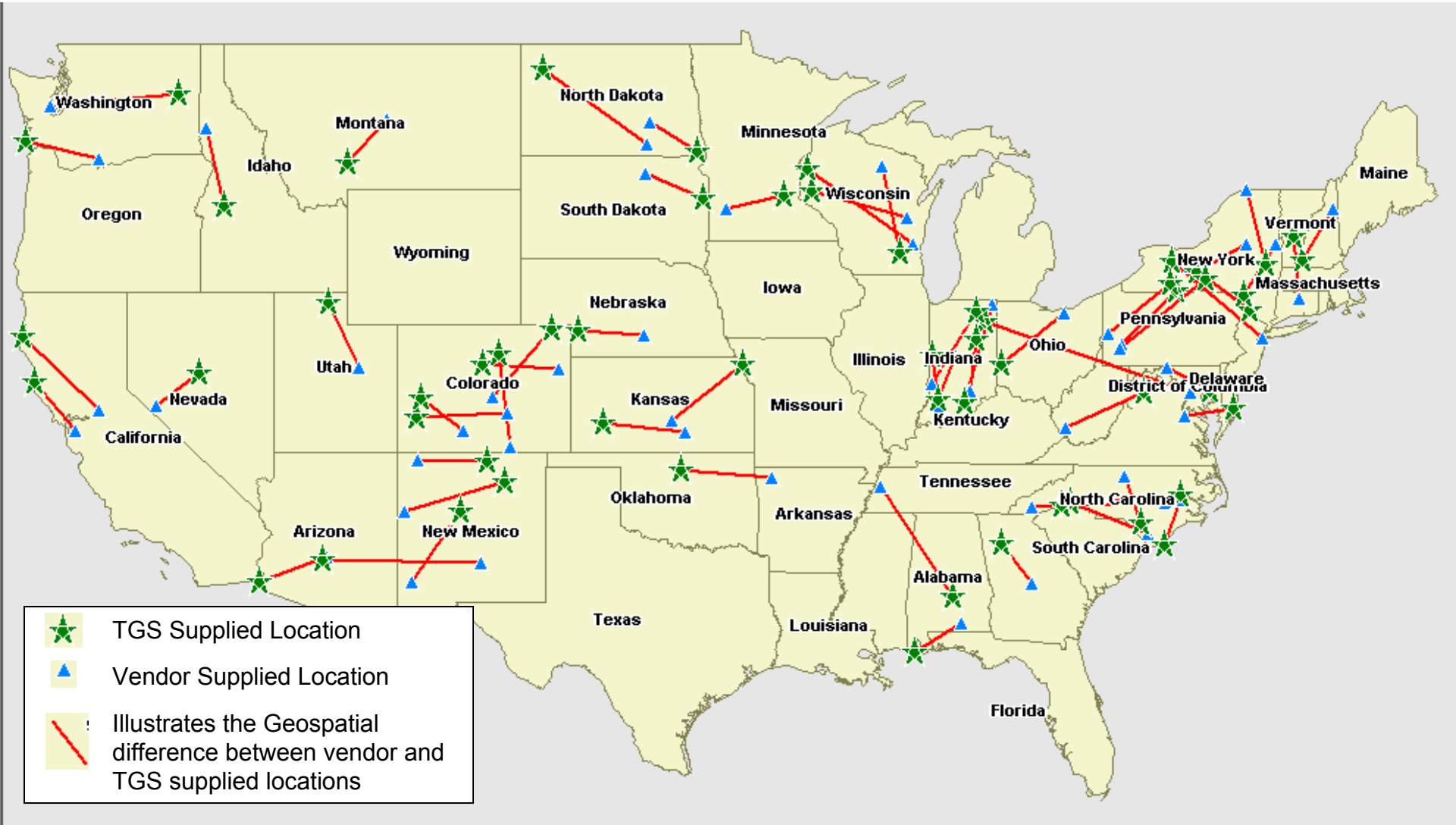


NAME		Geographic County
SAN BERNADINO CO FD # 92 AMB	Entity name does not match geographic county	SAN BERNARDINO
TUOLUMNE CO FIRE EMS DEPT 1ST RESP	Entity name does not match geographic county	CALAVERAS
JERMOME CO PARAMEDICS	Entity name does not match geographic county	JEROME
MCONE COUNTY FIRE DEPT AND EMS	Entity name does not match geographic county	MCCONE
MATHEW COUNTY EMS RESCQUE SQUAD	Entity name does not match geographic county	MATHEWS
RICMOND COUNTY RESCUE SQUAD	Entity name does not match geographic county	RICHMOND
CENTERVILLE VFD EMS CO 3	Entity name does not match geographic county	GOOCHLAND

What is The Contractor's Role?

Typical Findings

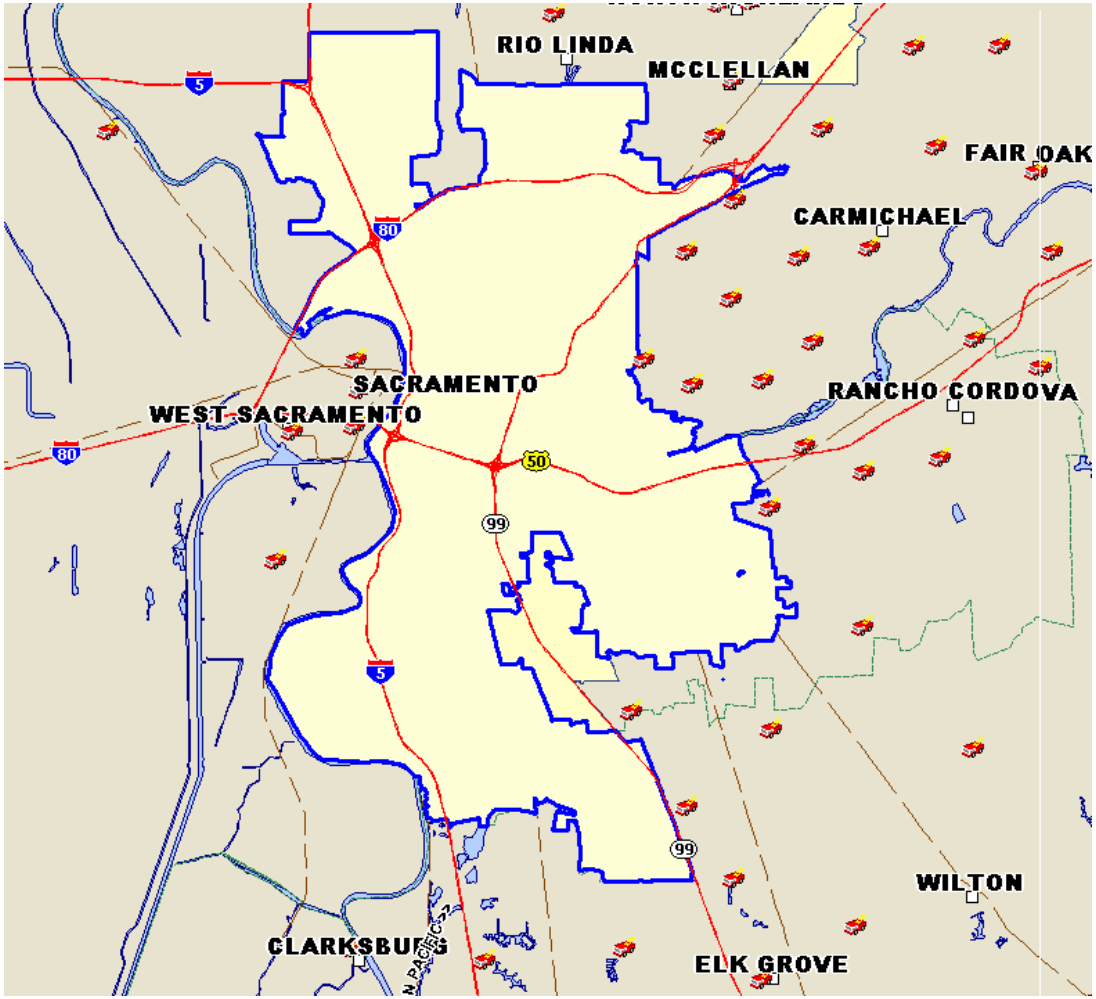
Illustration of Geospatial Errors found in 12/05 HSIP Commodity Ambulance Provider Dataset. (For clarity only those errors >= 100 miles are shown).



What is The Contractor's' Role?

Typical Findings

Commodity Fire Station Database was missing coverage in several major cities, including Sacramento, CA, and Cincinnati, OH.



Cooperation: A Better Way

- Limitations of Current Method
- What State and Local Officials Want
- The Plan
- Success Stories
- Testimonials

Limitations of Current Method

- No Access for State and Local Officials or NGOs
- Results of Improvement Efforts are “Locked Up” in License Restricted Data
- Local Officials Contacted Multiple Times for Same Information
- Administrative Only Locations
- Most Commodity Datasets not Developed for Uses Similar to those of Homeland Security.

Cooperation: A Better Way

The Plan

- State provides existing data.
- State coordinates with local officials.
- Contractor validates/verifies data.
- Contractor incorporates validated/verified state data into “license free HSIP” and delivers to state.
- Contractor incorporates validated/verified state data into HSIP and delivers to NGA

State provides existing data

- These layers are currently being worked on:
  - Fire Stations, EMS Stations, Police Stations, Prisons and Jails, Hospitals, Urgent Care Clinics
  - Colleges & Universities, State & Federal Owned & Leased Buildings, Red Cross Chapters, Veterans Health Administrations, Places of Worship (Catholic, Protestant, Mosques & Jewish Synogogues), 911 Response Districts, FBI Field Offices & Resident Agent Offices & USPS Bulk Mail Sorting Centers
  - The data the state provides does not have to be geospatial. For most of the above layers there will be some agency at the state government level that will have a suitable list of facilities or agencies.

State coordinates

- A letter from the state to local officials explaining the program and asking for their cooperation will:
  - Eliminate confusion and security concerns
  - Help insure the most accurate data is produced
- A sample letter is available which can be edited and placed on state letterhead

The Contractor verifies data

- Typically data validation/verification is achieved by calling local officials to verify their information and asking them to describe their location relative to features visible in ortho imagery.
- Contractor will listen to state officials concerning the nature of their data and what the most appropriate improvement activities might be. It may be that no improvement is necessary.

Contractor delivers

- Validated/Verified data to the state
- Validated/Verified data (incorporated with the rest of HSIP) to NGA
- The state and NGA have a Common Operating Picture

Cooperation: A Better Way

“Success Stories”

- Currently we have delivered 35 datasets to 15 different states.
- Currently we have 42 states on board with HSIP Freedom with 38 of those states currently providing data.
- We have 10 states interested but not currently committed.

Testimonials

- “Received your CD in the mail and looked at your data to ours. Very Nice Job. Pass on our complements to your people involved in this project”.

  John Stachelhaus – RI

- “First, the amount of attribution is extraordinary and far beyond anything we would ever be able to collect. Second, the geographic locations are very accurate as far as we can tell from our Enhanced 911 roads and other data. Last but not least the FGDC metadata is very complete and up to our standards, which are very high; we take the metadata very seriously here. We will be replacing our existing published data with this new data”.

  Larry Harwood – ME

FAQs

- What are the definitions for the layers?
- What attribution is being requested?
  - Fire Stations
  - EMS
  - Police Stations
  - Prisons & Jails
  - Hospitals
  - Urgent Care Centers

What are the definitions for the layers?

- A Fire Station Is:
  - Any location where fire fighters are stationed at, or based out of, or where equipment that such personnel use in carrying out their jobs is stored for ready use. Fire Departments not having a permanent location are included, in which case their location is depicted in the approximate center of the area served. This dataset includes those locations primarily engaged in forest or grasslands fire fighting, including fire lookout towers, provided the towers are in current use for fire protection purposes.

    This dataset includes both private and governmental entities.

What are the definitions for the layers?

- A EMS Station Is:
  - Any location where emergency medical service (EMS) personnel are stationed or based out of, or where equipment that such personnel use in carrying out their jobs is stored for ready use. The EMS dataset only includes providers that are mobile and does not include fixed location clinics or hospitals, as these are included in other HSIP datasets. Ambulance services are included even if they only provide transportation services, but not if they are located at, and operated by, a hospital. If an independent ambulance service or EMS provider happens to be collocated with a hospital, it will be included in this dataset. EMS (first responders) providers are included even if they only provide treatment at the site of the incident and do not provide patient transportation. The dataset includes both private and governmental entities. Excluded from the dataset are locations that are only administrative offices

What are the definitions for the layers?

- A Police Station Is:
  - Any location where sworn officers of a law enforcement agency are regularly based or stationed.
  - Law enforcement agencies "are publicly funded and employ at least one full-time or part-time sworn officer with general arrest powers". This is the definition used by the US Department of Justice - Bureau of Justice Statistics (DOJ-BJS) for their Law Enforcement Management and Administrative Statistics (LEMAS) survey. Although LEMAS only includes non Federal Agencies, this dataset includes locations for Federal, state, local, and special jurisdiction law enforcement agencies.
  - Law enforcement agencies include, but are not limited to, municipal police, county sheriffs, state police, school police, park police, railroad police, federal law enforcement agencies, departments within non law enforcement federal agencies charged with law enforcement (e.g. US Postal Inspectors), and cross jurisdictional authorities (e.g. Port Authority Police).

FAQs

What are the definitions for the layers?

- A Prison or Jail Is:
  - Any facility or location where individuals are regularly and lawfully detained against their will. This includes Federal and State prisons, local jails and juvenile detention facilities as well as law enforcement temporary holding facilities. Work camps, including camps operated seasonally, are included if they otherwise meet the definition. A Federal Prison is a facility operated by the Federal Bureau of Prisons for the incarceration of individuals. A State Prison is a facility operated by a state, commonwealth or territory of the US for the incarceration of individuals for a term usually longer than 1 year. A Juvenile Detention Facility is a facility for the incarceration of those who have not yet reached the age of majority (usually 18 years). A Local Jail is a locally administered facility that holds inmates beyond arraignment (usually 72 hours) and is staffed by municipal or county employees. A temporary holding facility, sometimes referred to as a "police lock up" or "drunk tank", is a facility used to detain people prior to arraignment. Locations that are administrative offices only are excluded from the dataset. This definition of Jails is consistent with that used by the Department of Justice (DOJ) in their "National Jail Census", with the exception of "temporary holding facilities", which the DOJ excludes.

FAQs

What are the definitions for the layers?

- A Hospital Is:
  - An institution which
  - (1) is primarily engaged in providing, by or under the supervision of physicians, to inpatients
  - (A) diagnostic services and therapeutic services for medical diagnosis, treatment, and care of injured, disabled, or sick persons, or
  - (B) rehabilitation services for the rehabilitation of injured, disabled, or sick persons;
  - (...)
  - (5) provides 24-hour nursing service rendered or supervised by a registered professional nurse, and has a licensed practical nurse or registered professional nurse on duty at all times; ...
  - (...)
  - (7) in the case of an institution in any State in which State or applicable local law provides for the licensing of hospitals,
  - (A) is licensed pursuant to such law or
  - (B) is approved, by the agency of such State or locality responsible for licensing hospitals, as meeting the standards established for such licensing;
  - (Excerpt from Title XVIII of the Social Security Act [42 U.S.C. § 1395x(e)], <http://www4.law.cornell.edu/uscode/html/uscode42/usc_sec_42_00001395---x000-.html>)
  - Included in this dataset are General Medical and Surgical Hospitals, Psychiatric and Substance Abuse Hospitals, and Specialty Hospitals (i.e. Children's Hospitals, Cancer Hospitals, Maternity Hospitals, Rehabilitation Hospitals, etc.). Hospitals operated by the Federal Government are included, such as military and VA hospitals, even if they are not licensed by the state they are located in, as long as they otherwise meet the definition.

What are the definitions for the layers?

- Urgent Care Clinics:
  - Urgent care is defined as the delivery of ambulatory medical care outside of a hospital emergency department on a walk-in basis without a scheduled appointment. (Source: Urgent Care Association of America)
  - The Urgent Care dataset consists of any location that is capable of providing emergency medical care and must provide emergency medical treatment beyond what can normally be provided by an EMS unit, perform surgery, or provide recuperative care beyond what is normally provided by a doctors office. In times of emergency the facility must be able to accept patients from the general population, or patients from a significant subset of the general population (e.g. children).
  - Entities that are excluded from this dataset are administrative offices, physician offices, workman compensation facilities, and hospitals. Urgent Care facilities that are operated by, and collocated with, a hospital are also excluded because they are included in the hospital dataset.

What attribution is being requested?

- Fire Stations & EMS Stations: * Are required fields

STATEID	State ID for feature, if any
*NAME	Name of feature
*ADDRESS	Physical address of feature
ADDRESS2	Unit number (suite, floor, etc) of address for feature
*CITY	City associated with the feature's physical address
*STATE	Two character USPS state abbreviation for state where feature is located
*ZIP	5 digit zip code associated with feature's physical address
*ZIPP4	4 digit zip code extension associated with feature's physical address
*AREA CODE	3 digit telephone area code for feature
*PHONE	7 digit phone number for feature
COUNTY	Name of county where feature is located
EMERGCONT	Name of person who is emergency contact
EMERGTITLE	Title or office of person who is emergency contact
EMERGPHONE	Phone number for person or office that is the emergency point of contact.
EMERGEXT	Phone extension for person or office that is the emergency point of contact
HAZMATCAPA	Ability of facility to handle hazardous materials (y/n)
FRFGHTRS	Number of fire fighters assigned to the facility
EMSPRSNL	Number of EMS personnel assigned to the facility
FRTRCKS	Number of fire trucks at facility
AMBLNCS	Number of ambulances at facility
NAICSCODE	North American Industrial Classification System Code
NAICSDESCR	North American Industrial Classification System Description

FAQs

What attribution is being requested?

- Police Stations: *Are required fields

STATEID	State ID for feature, if any
ORI	FBI ORI number for parent agency.
*NAME	Name of feature
*ADDRESS	Physical address of feature
ADDRESS2	Unit number (suite, floor, etc) of address for feature
*CITY	City associated with the feature's physical address
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EMERGPHONE	Phone number for person or office that is the emergency point of contact.
EMERGEXT	Phone extension for person or office that is the emergency point of contact
NAICSCODE	North American Industrial Classification System Code
NAICSDESCR	North American Industrial Classification System Description
AGENCY	Agency that feature is part of.
TYPE	Local, County, State, Federal, Tribal, or Special
HDQTRS	Indicates if the feature is the headquarters for its agency.

FAQs

What attribution is being requested?

- Prisons and Jails: * Are required fields

STATEID	State ID for feature, if any
ORI	FBI ORI number for parent agency.
*NAME	Name of feature
*ADDRESS	Physical address of feature
ADDRESS2	Unit number (suite, floor, etc) of address for feature
*CITY	City associated with the feature's physical address
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COUNTY	Name of county where feature is located
EMERGCONT	Name of person who is emergency contact
EMERGTITLE	Title or office of person who is emergency contact
EMERGPHONE	Phone number for person or office that is the emergency point of contact.
EMERGEXT	Phone extension for person or office that is the emergency point of contact
NAICSCODE	North American Industrial Classification System Code
NAICSDESCR	North American Industrial Classification System Description
LEVEL	Maximum, close, medium, minimum
TYPE	Local, County, State, Federal, Tribal
CPCTY	Capacity: the number of inmates that the feature is rated to hold

FAQs

What attribution is being requested?

- Hospitals: * Are required fields

STATEID	State ID for feature, if any
*NAME	Name of feature
*ADDRESS	Physical address of feature
ADDRESS2	Unit number (suite, floor, etc) of address for feature
*CITY	City associated with the feature's physical address
*STATE	Two character USPS state abbreviation for state where feature is located
*ZIP	5 digit zip code associated with feature's physical address
*ZIPP4	4 digit zip code extension associated with feature's physical address
*AREA CODE	3 digit telephone area code for feature
*PHONE	7 digit phone number for feature
COUNTY	Name of county where feature is located
NAICSCODE	North American Industrial Classification System Code
NAICSDESCR	North American Industrial Classification System Description
AMBLNCS	Number of ambulances operated by facility and normally stationed at facility.
BEDS	Number of beds facility is licensed for
CPCTY	Capacity or Surge Capacity: number of patients facility can physically accommodate if license restrictions are waived.
TRMACTR	Level of trauma center that facility has.

FAQs

What attribution is being requested?

- Urgent Care Clinics: * A required fields

STATEID	State ID for feature, if any
*NAME	Name of feature
*ADDRESS	Physical address of feature
ADDRESS2	Unit number (suite, floor, etc) of address for feature
*CITY	City associated with the feature's physical address
*STATE	Two character USPS state abbreviation for state where feature is located
*AREA CODE	3 digit telephone area code for feature
*PHONE	7 digit phone number for feature
*ZIP	5 digit zip code associated with feature's physical address
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COUNTY	Name of county where feature is located
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NAICSDESCR	North American Industrial Classification System Description

APPENDIX D: CI/KR Subcommittee Members

Critical Infrastructure / Key Resources Subcommittee as of 9/11/08

Jeff Bolton, *CT Department of Pubic Works (DPW), Chair*
Raymond Philbrick, *DPW*
Becky Cutler, *DPW*
Det. Andrew Burke, *CT Department of Public Safety (DPS)*
Det. Michael Grieder, *DPS*
Dan Czaja, *DPS*
Col. Gerald Lukowski, *CT Army National Guard (CTARNG), CT Military Department*
Beth Stewart-Kelly, *CTARNG*
Phil Moberg, *CT Department of Transportation (DOT)*
Wayne Kasacek, *CT Department of Agriculture (DOA)*
Peter Sandgren, *CT Department of Emergency Management and Homeland Security (DEMHS)*
Lauren McLane, *U.S. Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA)*
Lynn Bjorklund, *US Geological Survey (USGS)*

Defacto members

Jim Spencer, *DOT*
Mike Varney, *CT Department of Information Technology (DOIT)*
Liz Crutcher, *DOIT*